BANKING REFORMS AND BANKING EFFICIENCY IN LIBYAN COMMERCIAL BANKS: A NON-PARAMETRIC APPROACH

BY

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ABSTRACT

The Libyan economy has witnessed remarkable changes especially since the 1970s when the government introduced the so-called nationalisation and Libyanisation programmes and adopting socialist system. Consequently, the state undertook control of all economic and financial aspects. The Libyan banking system has been characterised as a governmental control system for credit allocation. This situation led to lax prudential regulation and supervision in banking sector as well as resulting in various problems such as lack of performance, low efficiency, high levels of non-performing loans, and lack of internal control systems. Therefore, Libyan government has return to privatisation in early 1990s including, the initial reform policy to enhance performance of banking sector. The main questions of this study are: 1) is the current performance of the Libyan banking sector acceptable. 2) Have the Libyan banking reforms affected internal control system, banking efficiency, and performance. The objective of this study is to assess and evaluate performance through measuring efficiency in the Libyan commercial banking sector by using Data Envelopment Analysis (DEA). In this study, however, we attempt to incorporate such qualitative aspects into our measurement of efficiency scores in order to appraise the potentials of the internal control systems by using questionnaire analysis. Recent literature on financial and banking reform is reviewed. In the light of this, an overview of the initial reforms in Libya is presented emphasising on the impact of government control over banking sector. Using DEA technique, the efficiency of Libyan commercial banking is analysed, as cross-section and DEA-window analysis during the period between 1980 and 2000, indicating little impact of the banking reforms, with scale inefficiency. In addition, score efficiency in conjunction with financial ratios suggest that banks with high efficiency scores also exhibit high scores in capital adequacy, asset utilisation, and liquidity position, and lower ratios in profitability, and asset quality. Finally, in terms of audit function efficiency, the results show that banks with high technical efficiency tend to have higher efficiency in auditing function.

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LIST OF ABBREVIATION

ADB	Asian Development Bank
BCC	Banker, Chaners, and Cooper' model
BCD	Bank of Commerce and Development
BIS	Bank of International Settlement
CAMEL	Capital adequacy, Asset utilities, Management efficiency, Earnings, and Liquidity position
CBL	Central Bank of Libya
CCR	Chaners, Cooper, and Rhodes' model
CRS	Constant Return to Scale
DEA	Data Envelopment Analysis
DMUs	Decision Making Unites
DRS	Decrease Return to Scale
EC	European countries
FEFSC	Foreign Exchange and financial Services Company
GDP	Gross Domestic Product
IMF	International monetary Fund
IREB	Industrial and the Real Estate Bank
IRS	Increase Return to Scale
KSA	Kingdom of Saudi Arabia
LAFB	Libyan Arab Foreign Bank
LAFIC	Libyan Arab Foreign Investment Company
LD	Libyan Dinar
NPL	Non-Performing Loans
PTE	Pure Technical Efficiency
ROA	Return to Assets
ROE	Return to Equity
SAMA	Saudi Arabian Monetary Agency
SE	Scale Efficiency
TD	Total Deposits
TE	Technical Efficiency
TL	Total Loans
US	United State
VRS	Variable Return to Scale
WB	World Bank

DEDICATION

To the soul of my mother, Asia Al-Zorgani

Who taught me how to deal in this life. Even though she died one and half year ago, but her wisdom, love, concern, kindness, and dedication are still the main elements of my success.

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DECLARATION

I certify that this work has not been accepted in substance for any degree and is not concurrently submitted for any degree other than that of Doctor of Philosophy of the university of Northumbria. I also declare that this work is the result of my own investigation except where otherwise stated.

Signature of Student:

CHAPTER ONE
INTRODUCTION, AIMS, OBJECTIVES, AND PLAN OF THESIS

1.1 Introduction

The financial sector throughout the world has recently witnessed significant developments, including the consolidation of institutions, the globalisation of operations, the development of new technologies, and the universalisation of banks. As a consequence, the expansion of banks has been accompanied by a banking crisis leading to the shaking of public confidence in the sector as well as deterioration in the quality of its services. Moreover, the 1980s witnessed a major banking crisis in many developing countries, followed spreading in the 1990s to many industrial countries. The total cost of this crisis has been estimated at around $250 billion (Honohan, 1997).

However, in the aftermath of the financial crises in both developed and developing countries, the efficiency of the banking industry has recently been receiving even more attention (Berger and Humphrey, 1997) rendering the examination of this banking efficiency an important issue for both the public and the policy makers alike.

Meanwhile, international cooperative efforts between the IMF, the World Bank, and the Basle Committee have focused on the possibility of alleviating a potential banking crisis by adopting a set of reform policies, including strengthening the framework of banking

regulations, supervision, and capital adequacy as well as the internal control systems in order to ensure a sound and efficient banking sector.

However, banks as financial intermediaries stand between the suppliers of money and the users of money. Banks receive funds from depositors (suppliers), and in return they have to assure these depositors that their money is efficiently used and carefully monitored. In other words, commercial banking is expected to be managed efficiently, prudently, safely, and profitably (Reed et al., 1984). Therefore, any discussion of banking as an institution or as an industry should deal with many aspects, including the structure of the banking system, risk management, the quality of services, profitability, and conduct as well as the regulation and supervision of banking activities. These aspects will jointly determine the banking efficiency. Yet, the general structures of the institutions that provide financial services are rapidly changing. Thus these institutions should become more efficient by improving profitability, intermediating larger amounts of funds, more competitive prices, better quality services, and greater safety and soundness (Berger et al., 1993).

In the early 1970s, the practices of the Libyan banking system were subjected to fundamental changes. The first dramatic transformation came about in 1970 when the government proceeded with the nationalization of the banking system, with the introduction of a new Banking law (No. 63/1971), which allowed the government to own and control the banking system (Ghanem, 1987).

However, over the past three decades or so, the banking system in Libya has been in severe turmoil, primarily regarding continuous interventions in the financial sector and the damaging consequences of these interventions for the banks and the economy as a whole. On the other hand, the Libyan government has recently been willing to open up the country to foreign investment in many sectors, in order to adapt to the challenges imposed by globalisation. However, that would imply the reform of the financial sector in general and the liberalisation of the banking sector in particular.

1.2 Research Problem

The banking sector in Libya, as in most developing countries, has witnessed significant government control particularly following nationalisation and the Libyanisation programmes of the early 1970 (more details are given later). Moreover, the banks have been subject to fundamental changes and regulations, which allowed the government to own and control the banking sector. However, this situation has led to enormous levels of government intervention, affecting the efficiency of Libyan commercial banking, and resulting in poor performance, high levels of non-performing loans and a lack of internal control systems [(El-Jehaimi et al, (1992); Attia and El-ghumati, (1993); Beal-kaer (1993); CBL, (1992); Al-Arbah (1997); Chamia et al, (1997)].

Hence, banking efficiency has become an area of great concern to the banks and regulators as well as researchers, as the industry tries to readjust itself to cope with the rapid changes that are taking place in the global banking environment. The performance of any institution, nonetheless, is often evaluated in terms of its efficiency regarding the use of resources, and yet the concept of efficiency is primarily an engineering concept,

mainly concerned with the measurement of the value of (a single) output for a given level of inputs. However, considered in a wider context, efficiency management is concerned with the full utilisation of the available inputs to achieve an optimum mix of outputs within the boundaries of feasibility in operations (Saha and Ravisanker, 2000).

Efficiency in banking organisations is defined as success in transforming resources to outputs. This research, therefore, will focus on: 1) assessing and evaluating performance through measuring the efficiency of the Libyan commercial banking sector by using Data Envelopment Analysis (DEA); and 2) appraising the potential of internal control systems as an important component of banking management and a foundation for safe, sound, and efficient operations in the banking industry.

1.3 Research Objectives

To address the research problem, this study aims to critically analyse the factors that produce the overall stability of the banking sector. Hence, the research objectives can be summarised as follows:

1. To provide a descriptive analysis of the Libyan commercial banking sector with special emphasis on the main problems and reforms introduced during 1970-2001.
2. To evaluate the performance of the Libyan commercial banking sector by measuring its banking efficiency.
3. To appraise the potential of internal control systems and the role they can play in sustaining the Libyan commercial banking system in meeting its objectives.
4. To give recommendations on banking reforms in Libya.

1.4 Research Questions

This study will undertake a detailed examination of the performance of Libyan commercial banks during the period 1970-2001, focussing on the operation of the Libyan commercial banking sector. However, the research recognises that internal control systems represent a foundation for safe and sound of banking operations enabling higher efficiency and higher performance. Here, several key questions following need to be answered:

1) Given the performance of the banking sector in the past 30 years, is the current performance of the Libyan banking sector acceptable?
2) Regarding the initial reforms policy, have the reforms introduced into the Libyan banking system affected internal control systems, and banking efficiency and performance?

1.5 Research Methodology

The methodology used in this study is:

1) A questionnaire study designed to evaluate the effectiveness of internal control systems in Libyan commercial banks. A detailed analysis of the questionnaire design and its aims are provided in chapter 5.
2) Using DEA methodology in conjunction with financial ratios to measure banking efficiency in Libyan commercial banks during 1980 to 2000. Further detailed analysis of DEA and the methodological approach used are offered in chapter 5.

1.6 Sources of Data

Despite the usual data collection problems associated with developing economies, the quality of data concerning the Libyan banking sector is sound. The publications of the Central Bank of Libya constitute the main sources of data for this study. These publications include CBL Annual Reports, Economic Bulletins, Special Reports and Studies, the official Gazette, decrees and acts etc. Other sources also include the annual reports of commercial banks, international financial statistics, International Monetary Fund papers, regional country reports, and World Bank publications.

1.7 Scope of the Study

This study will cover the period 1970-2001, primarily because:

1. The real national banking sector in the country began in 1970 following nationalisation and the Libyanisation of the banking sector, witnessing the emergence of the Central Bank of Libya as the sole monetary authority of the country.
2. Banks were required by the government to allocate funds to pre-selected sectors of the economy with no regard to the banking system of credit-worthiness; hence adversely affecting banking development.
3. The adoption of socialism in 1978 and the phasing out of the private sector has been a catastrophic blow to the commercial banking sector.
4. In late 1989, the Libyan government started moving towards privatisation, commencing its liberalisation policy by promoting foreign investment.

1.8 Contribution of the Study

This study will focus on the reform policies, performance and internal control systems in Libyan commercial banking. It will also investigate the performance of Libyan commercial banking over the period 1970-2001. Therefore, this study is expected to be of real value to various parties such as the commercial banking sector, the Central Bank of Libya (CBL) as the monetary authority and economic analysts and researchers.

1) To the Libyan Banking Sector

The study will be of great help in banking management by analysing and evaluating banking performance, efficiency and the effectiveness of internal control systems.

2) To the Libyan Government

The Libyan government has established the banking sector to be used as a tool to achieve its objectives regarding its socio-economic plans. Therefore, the government is using the commercial banking to provide credit facilities for its projects. Hence the government, and especially the CBL, is likely to benefit from this study by under standing the negative impacts of direct intervention.

3) To Researchers

A search of the literature to date reveals that no comprehensive research has been conducted in the area of efficiency, reforms, and the internal control systems of Libyan commercial banking operations. This study will be definitive, encompassing the operational characteristics of the major financial institutions operating within the Libyan economy, and therefore will be of benefit to researchers in this area.

To this end, the following points emphasise the significance of this study:

1) It evaluates the performance of Libyan commercial banking for the first time.
2) It critically investigates the impact of government intervention in the commercial banking sector.
3) It attempts to measure the efficiency and the performance of the commercial banking system in Libya.
4) By testing and evaluating the internal control systems, this study produces further evidence regarding the quality of the services provided by the commercial banking system in Libya.
5) It provides a framework for further studies.

1.9 Plan of the Thesis

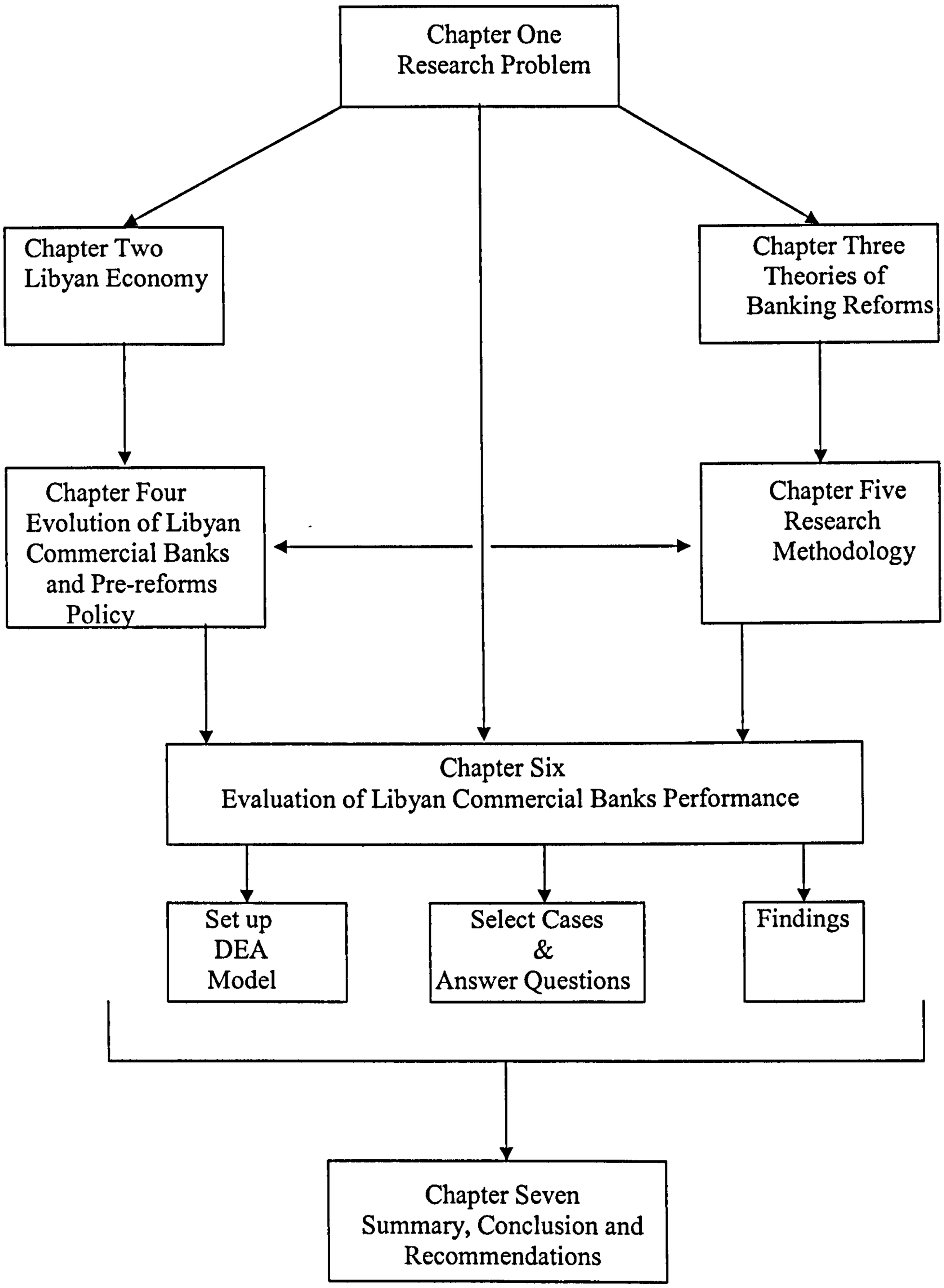
This thesis is divided into seven chapters as shown in figure 1.1. Chapter two gives an overview of the Libyan economy, with special reference to the financial sector and its historical development.

Chapter three provides a review of the literature with regard to the banking reforms. However, the first part of this chapter is mainly concerned with financial intermediation theory and the evolution of banking institutions, whilst the second part deals with the world financial and banking crisis and the impact of this crisis on the banking system. However, the final part of this chapter tries to investigate international cooperation regarding the banking crisis in issuing new regulations and standard principles for banking activities, with special emphasis on banking reform policies the world over.

Chapter four attempts to address the evolution of the banking sector in Libya regarding its development, growth, and pre-reform policies. This chapter is primarily concerned with the development of the Libyan commercial banks, as suggested by financial and economic indicators. Moreover, it will try to examine the structure of assets and liabilities regarding Libyan commercial banking during the period 1970-2001.

Chapter five defines the concept of banking efficiency, and outlines the methodology of the study, while chapter six tests Libyan banking efficiency using the DEA methodology. The empirical findings are described in this chapter. The final chapter will incorporate the summary, the conclusions of this study and the recommendations for bank management, Central Bank of Libya, government, and future studies concerning Libyan commercial banks' performance and its efficiency.

Figure 1.1: Diagram of the Thesis



CHAPTER TWO

THE BANKING SECTOR IN THE LIBYAN ECONOMY

2.1 Introduction

The modern Libyan economy depends on oil revenues, thus rendering Libya an oil *rentier state*. Prior to the discovery of oil in 1958 and the beginning of production in 1961, Libya had been one of the poorest countries in the world (Vandewalle, 1998).

As Ghanem (1982) argued, the Libyan economic situation before and during the Italian occupation had depended on agriculture, animal breeding and handcrafts. The discovery and the exportation of crude oil have changed the Libyan economy from one of the poorest countries in the world to the highest income in the region (Wright, 1982).

Furthermore, the Libyan government became responsible for finding the best way to spend the oil revenues regarding the various economic sectors, introducing a number of development plans in the 1970s and 1980s.

Following the end of World War II and the defeat of the Italians by the Allies in 1942, the monetary and banking systems broke down (ibid, 1982). However, before independence, the new government took control of the banking sector and monetary system established by the Bank of Libya and the commercial banks in April 1956, and

issued banking law No. 4 /1963, which was amended by decree No. 63/1971 (Bichara and El-Wifati, 1987).

This chapter attempts to describe the economic development process and its influence on both the banking and monetary systems in Libya from the early 1950s until now. This chapter is divided into three sections. The first part investigates the Libyan economic environment from the Italian occupation to independence and the oil discovery, and up to the September Revolution.

Part two provides the background of the financial sector in Libya by offering a summary of the financial markets and institutions. It discusses the general characteristics of the banking sector, the national bank of Libya and the banking laws, nationalization and the recent developments in banking system.

The third part discusses the role of the banking sector in the development plans. The chapter will end with a summary of the findings.

2.2 The Libyan Economic Environment

2.2.1 Libya under the Italian occupation

Libya has suffered from different foreign rules for most of its known history: the Greeks, the Romans, the Phoenicians, the Ottomans and the Italians (Wright, 1982). Before the twentieth century, Libya had been under rule of the Ottomans from 1551. The Karmanli family took over the country and established a semi-independent state from 1771 to 1835, when direct Ottoman rule was restored. By the middle of the nineteenth century,

the Ottoman Empire was in serious decline and had become known as the sick man of Europe (Craig, 1986; and Ghanem, 1982).

According to Ghanem (1982), before Italian colonial rule agriculture had been the backbone of the Libyan economy, where barley and wheat had constituted the main products which depended on the fluctuations of rainfall. However, the palm date had been the main food source, especially in southern Libya. Meanwhile, handicrafts such as hide dying used to produce shoes, sandals and sword belts as well as ship building had been the main occupations of the people in Libya. He adds:

> *"Thus the income of Libya during the reign of Youssef Pasha Karamanli became from the imposing royalties on other countries who wanted their fleets to sail in safely in the Mediterranean".*

During that time, the most important activity had been the Caravan traders between Africa and Europe through Libya. However, Libya suffered from the sparseness of resources, and the country had been described as waterless and trade-less, by the Italians (ibid, 1982). As a result of its strategic position, Libya has been subjected to a wave of foreign military invasions and colonisation for more than 3000 years (Nyrop, 1973), hence making Tripoli one of the leading merchant towns in Africa (Wright, 1982).

The Italians considered Libya as an integral part of Italy – the 'fourth shore'. To achieve their objectives, the Italians began with "a peaceful permeation" particularly in commercial activities. For instance, in Tripoli the Banco Di Roma started its operation of lending money to agriculture, light industry, mineral projects and shipping. A further eighteen branches of the bank were opened, and this activity was extended to Benghazi

and began to take over trans-Saharan trade, doubling the trade between Libya and Italy between 1906 and 1910. As Wright (1982) points out:

> *"Italian diplomacy spent 30 years, on and off, preparing international Opinion for the eventual occupation of Turkey's remaining north African possessions"*

As a result, the Italian banks played an important role in the subsequent occupation, for example collecting colonial information and purchasing land (Ghanem, 1982). The French occupation of Algeria and Tunisia, on the other hand had encouraged Italy to rethink her imperialist programme. Consequently, Italian aggression started in October 1911, and the Libyan resistance was not broken until the execution of the leader of the resistance, Omar El-Mukhtar, in 1932 (Wright, 1982).

2.2.1.1 The Libyan Economy under Italian Colonialism

As the Italian dream was to create a fourth shore and therefore strategically control the central Mediterranean basin, Libya was seen as a part of the mother country Italy; her role being to provide her mother with corn, olive oil and other products (ibid, 1982).

As Segre (1982) points out, the main goal of Italian colonial rule was to create the aforementioned fourth Mediterranean shore, making Libya part of Italy. However, the main benefit to Italy would be integrating the Libyan colony into the Italian economy. By 1938, the Libyan exports were mainly 109 million Lire worth of wheat, skins, esparto and vegetable oils, compared to 882 million Lire worth of imports.

The Italian occupation caused little change in the economic condition of Libya. According to published statistics, the Italian invested nearly 2 billion lire in Libya during

the occupation. Although agriculture had always been the backbone of the development programme, nonetheless the Italian colonists developed other ancillary sectors to support agriculture, as shown in table 2.1. Table 2.1 indicates that the Italian occupations expenditure was divided into two periods. The first period started from 1913 until 1936, where the Italian occupation focused on infrastructure projects such as roads, ports, and public buildings. These projects were intended to bring the country into the 20th century, and to attract Italians to settle in Libya. Moreover, roads and ports were of great importance to the Italian army in suppressing the national resistance.

After Italy achieved full control over Libya in 1932, the second stage commenced with agricultural development and land reclamation. It can be seen that 68 per cent of Italian expenditure from 1936 to 1942 was spent on this (Ghanem, 1982).

Table 2.1. Summary of Expenditure of the Italian Government on Public Works and Utilities

(In thousand liras)

Sectors	Tripolitania	Cyrenaica	Libya	Total
	1913-36	1913-36	1936-42	1913-42
Road construction	130,858	78,390	87,785	297,033
Port construction	53,000	123,383	66,320	242,703
Agriculture land réclamation	53,118	20,893	654,556	728,567
Public buildings	103,785	98,643	48,000	250,428
Construction of telephone & Telegraph lines& radio station	6,680	1,550	14,640	22,870
Hydraulic works	4,230	5,740	17,000	26,970
Sanitary works	6,200	635	-	6,835
Railway construction	52,100	62,121	8,250	122,471
Interest for amortization of loans	34,024	34,929	63,633	132,586
Total	444,095	426,284	960,184	1,830.563
Equivalence in Dollars ($)	58.017	49.765	51.028	158.810

Source: *Ghanem, S., The Libyan Economy before Independence in Joffe, E (eds) (1982) Social and Economic Development of Libya.*

2.2.1.2 The Libyan Economy under British Administration

When the British Military set up its control over Libya in 1942, the Libyan economy was very gloomy and was suffering from severe recession. Total monetary disarray

followed the closing down of all Italian banks in that year. A branch of Barclays Bank was the only bank still open, which played the role of a central bank for the military administration. Furthermore, there were a number of different currencies in circulation such as the Military Lire in Tripolitania, the Egyptian Pound in Cyrenaica, and the Franc in the Fazzen.

As mentioned above, in this bleak period for the Libyan economy, the trade balance was continually increasing in deficit, as shown in table 2.2. From the table Libyan exports are shown to have been primarily dependent on the agricultural sector, consisting of wheat, barley, olive oil, tobacco and esparto grass; whereas fuel, sugar, and grain (in famine years) constituted the bulk of the imported goods.

Table 2.2: Libyan Imports and Exports, 1945-1950 (Libyan £ in 000)

Year	Imports	Exports	Trade deficit
1945	3,007	1,191	1,186
1946	2,826	1,806	1,061
1947	4,466	1,797	2,669
1948	5,459	2,262	3,197
1949	6,125	2,143	3,982
1950	7,038	3,444	3,594

Source: *Ghanem, S., The Libyan Economy before Independence in Joffe, E (eds) (1982) Social and Economic Development of Libya.*

Moreover, the budget deficit was highly significant, and as shown in table 2.3, the government was unable to pay the cost of its administration. Libya suffered severe financial problems directly resulting from the Second World War.

Following a United Nations report on the poor economic situation in Libya it was suggested that Libya should be in receipt of greater help. Moreover, UN resolution No.289/IU in 1949 declared Libya an independent state by the unification of Tripolitania, Cyrenaica and the Fezzan.

Table 2.3: Government Budgets from 1942/43 to 1950/51(Libyan £ in 000)

Year	Cyrenaica	Tripolitania	Fezzan
1942-43	-373,010	-549,582	
1943-44	-358,265	-367,478	
1944-45	-398,977	7,648	-394
1945-46	-119,801	-21,629	3,329
1946-47	-445,240	192,330	346
1947-48	412,300	-1,087,730	-3,487
1948-49	737,311	-580,972	-71
1949-50(9 months)	853,663	-403,160	-13,669
Total grants in aid	**3,720,823**	**2,810,573**	**17,621**
1950-51	-1,564,265	-21,925	-80,000
1951(months)	-1,181,740	-463,000	-75,600

Source: *Ghanem, S., The Libyan Economy before Independence in Joffe, E (eds) (1982) Social and Economic Development of Libya.*

2.2.2 Independence and the Discovery of Oil

2.2.2.1 Independence

After the end of World War II, Libya came under British and French Administrations until 21 November 1949, where upon the United Nations General Assembly resolved that the three territories should be reconciled to become an independent unified state. On December 24 1951, Libya officially became an independent state under the name the United Kingdom of Libya (Wright, 1982). At the time of independence Libya was one of the poorest nations in the world. El-Fathly (1977) quoted Benjamin Higgins who described the situation in Libya as:

> *"Prototype of a poor country.... the bulk of the people lived on a subsistence level...no sources of power and no mineral resources, where agricultural expansion is severely limited by climate conditions, where capital formation is zero or less,Where there is no skilled labour supply and no indigenous entrepreneurship.....Libya is at the bottom of the rank in income and resources".*

The annual per-capita income was barely £15; there was little trade, high unemployment, and all the Italian banks had been closed (Wright, 1982). Thus Libya became dependent on aid from foreign states and payments for the use of military bases, particularly those of the USA and the UK as indicated in table 2.4.

Table 2.4: Foreign Assistance Allocation to Libya: 1952-1960

Countries	Total Allocation (L£000)	%
US	41,138	56
UK	28,740	39
France	893	1
Italy	1070	1
United Arab Republic	50	-
Turkey	50	-
Pakistan	10	-
UN Technical Assistance	1964	3
Total	73,915	100

Source: *The Economic Development of Libya published for the I.b.r.d. by the John Hopkins press, Baltimore, 1960: cited in Abbas, (1987: p.68)*

2.2.2.2 Oil Discovery and its Impact on the Libyan Economy

Before the oil discovery, Libya was one of the poorest countries in the world. In less than one decade, Libya became one of the largest exporters of crude oil, enjoying sustained growth rates of more than 20% annually during the 1960s (Ghanem, 1987). After independence, the government published the Minerals Law in 1953, allowing eleven international oil companies and geological surveyers to commence work in Libya (Wright, 1982). In June 1961, Libya jointed the Organization of Petroleum Exporting Countries (OPEC). At the end of 1967, a dynamic and nationalist movement led to the establishment of the so-called Libya General Petroleum Corporation (Lipetco), which officially commenced its activities in April 1968 ((Wright, 1982).

Oil exploration and exportation have made a number of important changes in the Libyan economy, including the dominance of the oil sector the relative growth of imports, and the dependence on foreign markets. Furthermore, the oil revenues were under the direct control of the government, and therefore the government had to look for the best way to spend them (Ghanem, 1987).

2.2.2.3 The Impact of oil Revenues on the Libyan Economy

Since the 1960s Libya's place in the world has dramatically changed, regarding its significant potential oil revenues. However, a few years after the first shipment, the Libyan economy had been transformed from one of the poorest in the world to one with highest potential in the region, since Libya had become the world's fourth largest exporter of crude oil (Wright, 1982).

Eventually, this dramatic transformation was reflected in the government budget and the national economy, and therefore Libya's status had changed from being a capital deficit nation to a capital surplus nation (El-Fathly, 1977). Yet, the increase in oil revenues and their significant contribution to the total national income caused a decline in other sectors of the economy, particularly agriculture. Table 2.5 clearly illustrates this picture.

The production of oil continued to grow sharply and oil became the biggest source of the national income; where the state income from oil, general domestic production, the standard of living, and per capita income all grew accordingly in a more dramatic and quick manner. As a result of the expansion of the oil exports and the development projects, the total imports began to increase sharply as shown on table 2.6 (Ghanem, 1987).

Table 2.5: The Contribution of Oil Revenues to Total Libyan Revenues

Year	Total Revenue (in U.S. $ m)	Oil Revenue as percentage of total Revenue
1962	86.698	7.8
1963	121.050	20.0
1964	212.918	37.6
1965	289.027	63.6
1966	423.360	66.6
1967	1080.912	83.4
1968	838.320	76.5
1969	1205.904	77.4

Source: *"Volume 14 of Annual Report: Bank of Libya, Tripoli 1970; Volume 17 of Annual Report: Bank of Libya 1975; Volume20 of Annual Report: Bank of Libya 1975" in El-fathly and Palmer, 1980.*

As table 2.5 shows, the total income of Libya had become dependent on oil revenue and the phrase *rentier* state has been applied in the case of the Libyan economy. As El-Fathaly et al (1977) have noted, the "*rentier* state can achieve dramatic rises in per capita income without going through the social and organization changes usually associated with the processes of economic growth". In this situation, the problems of the Libyan economy remained, and oil has only provided the financial means to solve these problems (Wright, 1982).

Table 2.6: Total Imports and Food Imports in Libya, 1963-69 (in $ mn)

Year	food imports	Total imports
1963	28.46	237.98
1964	37.38	291.54
1965	45.20	319.16
1966	54.96	403.69
1967	74.01	478.37
1968	77.15	646.56
1969	85.85	675.07

Source: Ministry of Economy and Ministry of Planning, Annual Foreign Trade Statistical Bulletin, 1963-1970(Tripoli) in Gahnem, 1987.

2.2.2.4 The Five –Year Social and Economic Development Plan 1963-69

Prior to 1963, Libya did not have a national economic development plan. The economic planning during the period between 1952 and 1960 produced very little results (El-

Maihub, 1981). Allocating 70 per cent of oil revenues for development and modernisation of national infrastructure characterised the first plan in 1963, when the government announced a five–year economic and social development plan from 1963 to 1968. The total amount of LD 169 million (about $500 million) was to be spent on various sectors of the economy. The plan was extended for one more year until 1969 in order to complete unfinished projects.

Table 2.7: Development Expenditure, 1963-69 (in LD mn)

	1963	1964	1965	1966	1967	1968	1969	Total
Agriculture, animals	1.3	1.9	7.2	10.1	17.3	14.4	13.2	65.4
Industry, minerals	0.1	0.6	2.0	4.7	7.4	7.4	6.3	28.4
Electricity	1.7	2.9	3.7	5.8	14.1	16.8	11.8	56.8
Transport, Communication	4.4	6.4	13.0	10.2	18.7	24.3	14.5	91.6
Housing, utilities	4.1	7.5	12.1	23.0	42.1	34.1	39.3	162.2
Local administration	-	-	2.9	9.9	6.8	14.6	12.1	46.3
Education	0.6	1.0	5.6	10.7	8.1	13.6	8.0	47.6
Public health	0.7	0.2	0.8	2.1	5.5	4.9	2.9	16.5
Labour and social offices	0.7	1.6	3.5	3.4	5.3	5.3	1.0	20.2
Information &culture	-	0.1	0.4	0.4	0.7	3.0	2.0	6.6
Economy and tourism	0.1	0.6	0.5	0.6	1.0	1.1	0.4	4.3
Planning	0.1	0.2	0.6	1.4	1.1	1.0	0.6	5.0
Total	13.8	23.0	52.4	82.3	128.1	140.5	112.1	551.0
Total equivalence US $	**38.50**	**64.87**	**149.19**	**229.61**	**360.47**	**392.74**	**313.49**	**1540.19**
Total allocation of the plan	21.7	32.5	87.0	90.8	105.0	143.3	145.0	625.3
T/income from oil	38.5	75.2	125.4	186.0	223.3	357.8	419.7	1425.9

Source: *Ministry of Planning, National Accounts 1962-1971 (Tripoli, 1972) in Khader, eds., (1987) The Economic development of Libya.*

By the end of 1969, however, the allotment of funds for the first plan had reached LD 625 million (about $1700), while the actual spending had amounted to LD 551 million (just over $1500 million) as shown in table 2.7. The main focus of the first plan was to improve the living standards of the people, and improving of public services such as transportation, communication, and electricity together absorbed about 43 per cent of the total budget of the plan (Ghanem, 1987; El- Fatahly, 1977).

As Ghanem (1987) argues, in the first plan the spending on agriculture and industry was primarily for the purpose of conducting research and feasibility studies on certain projects which were regarded as the most important for the country.

The total actual expenditure on the development projects from 1963 to 1969 was LD 551 million with the main emphasis on housing (30%), transport and communication (17%), agriculture (12%) and electricity (10%). The total expenditure for the period 1970-80 was LD11.22 bn (about $35 billion) distributed according to the priorities of the development plans. For instance, the second five-year plan (1969-1974) was allocated US$3.2 billion i.e. almost 2.5 times the actual expenditures of the first five-year plan. However, this was never implemented, as a new regime took control of the country on the first of September 1969, and subsequently the whole plan was rejected (El-Maihub, 1981).

2.2.2.5 Population Growth

Libya's population in 1954 was 1.1 million with an annual population growth rate of around 1.25 per cent. This low growth rate was due to lack of hygiene and other health issues. However, following the oil discovery, this picture completely changed, and the population growth rate in Libya has become one of the highest in the world (Kezeire and Lawless, 1987).

Table 2.8: Population 1980-2003 (in million)

	1980	1985	1989	1992	1995	2000	2003
Population	3,246	3,790	4,250	4,480	4,750	5,240	5,660

Source: *The Five-Year Plan 1981-85, IMF, International F inancial Statistics Yearbook 2004.*

Table 2.8 shows that Libya's population in 1980 was 3.2 million and increasing to 4.250 million in 1989 and to 5.660 million in 2003. The annual growth rate of 4.3 per cent between 1988 and 2000 was one of the highest population growth rates in the world (Special Report, 1986; EIU, 1991a). This rapid increase can be explained by improvements in the standard of living, the availability of free medical services, and the return of Libyan emigrants who fled to neighbouring countries during the Libyan-Italian war.

2.2.3 The New Strategy on the Libyan Economy and the Role of Government

Among the basic motives which led to the 1969 September revolution, were the liberation of the national economy from foreign control and the achievement of integrated development in all sectors of the economy. To meet this fundamental goal the new government took a series of initiatives aimed basically at improving the terms of agreement with the foreign oil companies operating in the country. These initiatives ranged from the adjustment of the oil prices to the application of participation and nationalisation in the early 1970s.

A study of the Libyan economy after the El-Faith revolution can be divided into three periods: nationalisation and pre-plan in the 1970s, the decline in oil prices and the economic crisis of the 1980s; and the new era and return to de-nationalisation/privatisation.

2.2.3.1 Nationalisation and Development Plans in the 1970s

As mentioned above, the Libyan economy is dependent on oil revenues, where the contribution of these revenues to national income had reached 77% in 1969 (El-Fathally, 1977). Nonetheless, the new regime spotted the strengths and weaknesses of the economy. As a matter of fact the income from oil was rapidly on the rise, reaching LD 1200 million per year. As a result, the Libyan economy was faced with many problems. For instance, only 5 per cent of a total area of 1.7 million square kilometres (about 680,000 square miles) was arable land, and therefore economically feasible. Moreover, the small size of the population and the under skilled workforce was added to the fundamental problem (Wright, 1982).

Two years of economic stagnation was followed by the 1969 coup which brought the new government with its many development plans. The economic goals of the revolutionary government were as follows (El-Fathaly and Palmer, 1980):

1. *Agrarian self-sufficiency;*
2. *Industrialization and substitution of industrial production for oil production as the foundation of the Libyan economy;*
3. *Reduced dependence on foreign labour;*
4. *Involvement of Libyans in the production economy in order to break down the rentier state pattern; and*
5. *The development of a viable economic infrastructure.*

The first plan, a tripartite programme (1973-5), allowed about $6.6 billion for overall spending as shown in table 2.9. As El-Fathaly (1977, 1980) reported; the three-year plan had three fundamental objectives:

1. *Improve the productive capacity of the Libyan economy;*
2. *Reduce dependency on the oil sector; and*
3. *Build regime support by redistributing Libya's oil wealth as fairly as possible among Libya's populace.*

Furthermore, the first economic quandary of the new government was to find a way to use the country's wealth, and to endeavour to rebuild a social welfare state with excellent international diplomatic relationships (Wright, 1982).

The main goals of the first development plan under the new regime were self-sufficiency in basic foodstuffs, and to transform Libya into a modern industrial state (Wright, 1982; El-Fathaly, 1977).

As table 2.9 suggests, with the advent of the new government, it can be seen that new sectors were established and priorities changed. Nearly 17 per cent of the total plan was allocated to agriculture, whereas manufacture received only 11 per cent of the total, reflecting the priorities of the new government focussing on the development and the diversification of the economy away from the oil sector (El-Fathaly, 1977).

Table2.9: Allocation among Sectors in the 1973-1975 Plans

Sector	Allocation in million U.S. dollars	Percentage of total
Housing	**1,213.96**	**18.4**
Agriculture	**1,101.40**	**16.6**
Electricity and water	**864.86**	**13.1**
Transport and communication	**853.76**	**12.9**
Industry	**776.17**	**11.8**
Education	**645.64**	**9.8**
Public services	**627.31**	**9.5**
Health	**238.56**	**3.6**
Petroleum	**164.30**	**2.5**
Construction	**20.83**	**0.3**
Other minerals	**9.74**	**0.2**
Bank and insurance	**1.34**	**-**
Reserves	**80.30**	**1.2**
Total	**6602.40**	**100.0**

Source: *The Three-Year Plan (1973-75), Ministry of Planning in (El-Fathaly and Abusedira, 1980)*

The second socio-economic plan of the revolutionary government was introduced in March 1976, covering the period 1976-1980 and allocating $ 24.3 billion (about LD 7.2 billion) for spending. The new plan was aimed at achieving an annual GDP growth of 10 per cent and 25 per cent in industrial production. However, given the fact that manufacturing became the first priority of the second plan (LD 1.51 bn 21.1% of total investment) many factories were established to sustain this sector during this period. The next priority was transport and communications (LD 1.19 bn 16.7%), and the third sector was agriculture (LD 1.03 bn 14.4% of total investment) with the introduction of several new economic sectors. Thus, it can be seen that the priorities of this plan compared with the first plan (1973-75) had changed, in accordance with the changes in the development plan.

Yet, during the late 1970s, a new socialist ideology was introduced which transformed the country's economic foundations. As a result, private sector activities had to be suspended, and most of these activities came to be run by workers committees (El-Fathaly, 1977; El-Fathaly and Palmer, 1980; Vandewalle, 1998). In fact, the second plan was not complete; only about three-quarters of the allocated funds were finally spent because of labour, infrastructure, bureaucratic and other constraints (Wright, 1982).

2.2.3.2 Economic Performance in the 1970s

Some of the main economic indicators for 1970-80 are presented in table 2.10 showing a noticeable rise in the value of exports from $ 2.43 billion (about LD 870 million) in 1970 to $ 23.46 billion (about LD 6.96 billion) in 1980. However, during the same period, the value of imports increased from $1.12 billion (LD 403 m) in 1970 to $11.13

billion (LD 3.30 billion) in 1980. Correspondingly, the balance of trade surplus rose from $1.30 billion (LD 467 million) to $12.33 billion (LD 3.65 billion) in 1980. These Libyan imports mostly constituted foodstuffs and different manufactured goods, vehicles and luxury consumer goods, whereas crude and refined oil remained the main Libyan export.

The per capita income in Libya, however, rose remarkably after the oil discovery, particularly in the 1970s. The discovery of oil lifted the per capita income in Libya from one of the lowest in the world in the 1950s to the highest among African countries. Before the oil discovery, the per capita income in 1951 was $30 per year, while by 1970 it rose to its current level of $1,683 and then to $9,045 in 1980, representing the highest rate in the third world in the 1970s.

On the other hand the gross domestic product (GDP), which was estimated at $ 3.98 billion (LD 1.4 billion) in 1970, increased dramatically to $13.08 billion (LD 3.8 billion) and then to $31.20 billion (about LD 10.88 billion) in 1980. However, the contribution of oil to the economy has been very significant, representing around 60 per cent of the gross domestic product.

Table 2.10: Economic Indicators in the 1970s (in $ billion)

Year	GDP	Per capita (in $ thousand)	Exports	Imports
1970	3.98	1683	2.43	1.12
1972	5.40	2098	1.67	1.16
1974	13.08	5315	4.81	2.79
1976	16.53	5889	9.70	5.63
1978	19.16	6472	23.68	9.31
1980	31.20	9045	23.46	11.13

Source: *International Monetary Fund, International Financial Statistics (Year book), 1981.*

To summarise the first decade after the revolution of 1969, the priorities of the new government changed and the new regime adopted a socialism system. The Libyan government's income from oil increased, and government planning continued with a different strategy. The first plan was a three-year economic and social plan (1973-75), followed by the transformation plan (1976-81). The total spending on development projects throughout the 11 years (1970-80) reached LD11.225bn (about $35 billion).

However, according to Ghanmen (1985), direct state intervention into economic activities increased during this period:

> *"By 1979 the private sector in the country was almost totally abolished. Ownership ceased to exist except in agriculture. In addition, people were not allowed to own more than the house they lived in"*

The economic structure was transformed by the government, the state started to take over all economic activities, and enterprises became state-dominated either through nationalization or otherwise through the application of the ideology of the new regime (Wright, 1982; Ghanem, 1985; Vandewalle, 1998).

2.2.3.3 Oil Prices and the Economic Crisis of the 1980s

By 1979, dramatic changes had been taking place in Libya. However, even more radical changes in Libya's political system were initiated in 1976. The name of state was changed to "The Socialist People's Libyan Arab Jamahiriya". The structure of the economy was also profoundly affected by political change at the end of the 1970s (EIU, 1991b).

From 1978 until 1989, Libya's economy and commerce were in the hands of state organisations. All private ownership was abolished, business enterprises were replaced by government agencies and workers took over the private and public sectors. The private sector retail trade was inhibited or replaced by people's supermarkets under the control of the rank-and-file of the People's Congresses (Mattes, 1987).

Moreover, the industrialized countries had taken many steps to reduce their dependence on OPEC oil. The Libyan economy was affected by a sharp decline in the demand for oil, and the income from oil dropped sharply as a result of both price reduction and production cuts (see table 2.11).

Table 2.11: Oil Revenues, 1980-90 ($billion)

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
14.2	15.3	13.0	11.9	10.6	9.7	5.4	5.4	5.2	8.0	11.2

***Sources**: EIU, in EIU (1991)" Libya in the 1990s".*

While the total oil revenue of Libya was $14.2 billion in 1980, it fell to $13.0 billion in 1982, and went down further to $10.6 billion in 1984. By the end of 1988, the figure had fallen to nearly $5.2 billion (EIU, 1991a).

Meanwhile, a trade embargo was imposed by the US Reagan administration in April 1982. In addition, in 1985 the ban on crude oil was extended to cover all hydrocarbons imports (EIU, 1991a). Yet, despite the attempts of the Libyan government, the economy still remained in an unbalanced state; heavily depending on oil as a major source of financing as well as on immigrant labour as a major source of the workforce (Ghanem 1985; Burgat, 1987). Furthermore, Libya still remained heavily dependent on food imports, despite the large investment in agriculture made over the previous two decades

under the Fatih revolutionary government. However, in order to reduce this dependence on imported food, the government continued to promote food production as the basis of its agricultural policy, working towards achieving self-sufficiency in food materials (EIU, 1991a).

So, in January 1981, the General People's Congress adopted a new five-year development plan with the aim of reinforcing non-oil economic activities. The productive sectors in particular (agriculture, industry and electricity) were to receive more than 50% of the total investment in the whole plan, as shown on table 2.12.

Table2.12: Allocation of Developemnet Plan by Sectors (in per cent)

Sectors / Plans	1976/80	1981/85
Agriculture	**17.9**	**18.2**
Industry	**15.9**	**23.1**
Oil and Gas	**10.1**	**1.2**
Housing	**11.6**	**10.0**
Education	**6.9**	**5.9**
Health	**2.5**	**3.3**
Electricity	**7.9**	**11.8**
Transport and Communication	**13.2**	**12.3**
Utilities	**9.2**	**7.6**

Source: *The Committee for Middle East Trade 1986; In" The Five-Year Development Plan 1980-85".*

Expenditure under the 1981-85 plan stood at LD17 billion with an additional LD1.5 billion in reserves, bringing the total allocation up to LD18.5 billion ($62.5 billion). The greatest emphasis was placed been on the manufacturing sector (LD3.9 billion-23.1%) followed by the agriculture sector including land reform (LD3.1 billion-18.2%) and 11 per cent was devoted to communications, When oil prices began to tremble, the Libyan economy did also, and started to suffer difficulties in financing many of its development projects, hence causing the government to consider restrictions on imports. However, after the dramatic drop of oil revenues in 1985-86, the Libyan government introduced a

new system of partnership called "Tachrokyaat", whereby small businesses such as hotels, services, and light industries were run by cooperatives. The private ownership of shops, small businesses, farms and medical practices was also allowed. Moreover, in 1989, all state-owned import and export organisations were disbanded and the private sector was reinstated (EIU, 1991b).

This change towards liberalisation began after 1985 when the country's oil revenues declined from $14.2 billion to $9.7 billion in 1985 declining sharply to $6 billion in 1986. However, shortly after that, the Ministry of Industry announced a schedule for the future privatization of all economic enterprises. Yet, by the end of 1988, about 140 companies had already come under the control of self-management committees, whereby most light and medium-sized manufacturing enterprises became self-operated and many big supermarkets were reopened (Vandewalle, 1995).

2.2.3.4 The Economic Trends in the 1980s

Despite the change in the structure of the Libyan economy that started in 1980, the economy still remained dependent on oil revenues. Oil represented 45.5 %, 40 % and 42.1 % of the GDP in 1980, 1985 and 1989 respectively. As table 2.13 shows, GDP in 1980 had increased to $31.2 billion, following the oil boom of the early 1980s. However, the decline in both the oil prices and demand between 1981 and 1986 had reduced GDP by 22% in 1985 (to about $24.3 billion) then dropping sharply to $19.1 billion in 1989. On the other hand government expenditure had also been affected, where most projects had been frozen and the state had started to practice control over the foreign exchange surpluses by imposing restrictions on imports (EIU, 1991a and b).

As table 2.13 shows, per capita income reached its peak in 1980 at $9,045, as a result of the second world oil crisis and then by 1985 it dropped to two-thirds its 1980 level, then decreasing to an estimated $4,360 in 1989. This trend in personal income was synchronous with the size of the Libyan population, which rose from 3.24 million in 1980 to 4.25 million by 1989.

Table2.13: Trends in GDP, 1980-1989

Sectors	1980	%	1985	%	1989	%
Agriculture	593	1.9	486	2.0	360	1.9
Petroleum	14,242	45.5	9,720	40.0	8,040	42.1
Industry, mines	1,189	3.8	1,220	5.0	1,090	5.7
Construction	3,756	12.0	3,640	15.0	2,865	15.0
Transport	1,439	4.6	1,215	5.0	960	5.0
Electricity	282	0.9	240	10.0	210	1.1
Services	9,701	31.2	7,780	32.0	5,575	29.2
Total GDP ($ million)	31,200	100.0	24,300	100.0	19,100	100.0
GDP per head ($ thousand)	9,045		5,900		4,360	
Population (million)	3.24		4.12		4.25	

***Sources**: Central Bank of Libya; Secretariat of Planning' in EIU* (1991)"Libya in the 1990s".

As mentioned above, in this period Libya suffered from many problems. Oil revenues had declined from $14.2 billion in 1980 to only $5 billion in 1988. The fall in revenues caused serious cash-flow problems, which affected the 1981/85-development plan (Ghanem and Burgat, 1987). The drop in total income led to restrained government spending and brought down the levels of imported goods, resulting in lower standards of living.

By the end of 1987, many transformations had appeared in the economy after the government had adopted and introduced the new economic system. Nevertheless, the Libyan economy was still dependent on oil revenues despite the heavy investment in the agriculture and manufacturing sectors.

2.2.3.5 Towards Privatisation

From 1970 until 1990 the Libyan economy had been centrally planned, where the government had controlled both the production and services sectors. Yet, by the end of 1987, government introduced a series of measures with regard to economic liberalisation. This was primarily to do with the significant decline in Libyan economic performance, which continued during 1990-93 when annual development expenditure was estimated at about $2 billion.

The Libyan economy still depended mainly on revenues from the oil sector, which constituted about 95 per cent of export earnings and about one-third of GDP in the 1990s. Nonetheless, due to this large dependence on the oil exports, the Libyan economy had become susceptible to external factors, especially fluctuations in world oil prices. The GDP had either contracted or grown very lethargically since 1992, as shown in table 2.14 (Newafrica.com, 1999). However, during the period 1990-2000 the Libyan economy had become far weaker than it used to be in the early 1980s (I-cias.com, 1996).

Table2.14: GDP for Libyan Economy in 1990s ($ billion)

Years	1990	1992	1995	1996	1997	1998	1999	2001	2003
GDP	27.13	29.08	30.68	33.61	35.27	27.65	30.83	25.90	24.3
Oil	9.51	8.36	9.37	10.68	11.57	5.94	8.85	10.86	10.3
Non-oil	17.62	20.72	20.31	22.93	24.70	21.71	21.98	15.04	14.0

Sources: *The National Corporation for Information and Document (different years),* ***and***** International Financial Statistical YearBook2004.*

Table 2.14 shows the country's GDP in 1990s. Libya's GDP was registered at $27.13 billion in 1990 with a 35% contribution from the oil sector ($9.51 billion), gradually increasing to $30.68 billion in 1995 and creeping up to $35.27 billion by 1997. However, after the decline in world oil prices in 1998, coupled with the effect of the UN

sanctions on the economy, the GDP had declined to $27.65 billion in 1998, leading to import restrictions. At the same time, inefficient resource allocations caused periodic crises in the supply of basic goods and foodstuffs (New Africa, 1999). However, the GDP declined to $25.9 and $24.3 billion in 2001 and 2003 respectively.

Table 2.15: Contribution of Oil Sector from 1990-99(as percentage)

Year	1990	1992	1995	1996	1997	1998	1999	2001	2003
%	35	28.27	31.67	32.80	32.67	22.08	28.72	40.69	42.38

Sources: *The National Corporation for Information and Document (different years).*

Nevertheless, the Libyan government had succeeded in reducing its dependence on oil from 63.5% of the GDP in 1970 to 42.3% in 2003, as shown on table 2.15.

Yet, seven years on from the previous socio-economic development plan, the government announced its fourth economic plan covering the period 1994-96. The main goals of this programme were to proceed with the uncompleted projects of the previous development plan, besides establishing new projects in health, public utilities, education and energy, and the first priority of this programme was to encourage investment in the industrial sector in order to improve production. However, the total allocation for the three-year programme stood at LD2.4 billion.

Due to the decline in oil prices there were severe shortages of funds, and actual expenditure was LD1.5 billion, representing 60% of the total allocation. The energy sector, however, was the main priority of the programme, taking LD 371.5 million, followed by an administration development budget of LD 271.9 million. The housing sector received LD 140.4 million and the industrial sector LD 112.8 million (Secretariat of Planning, Economics and Trade, 1997).

As mentioned earlier, oil export revenues, which had previously accounted for about 95% of Libya's hard currency earnings, were severely reduced after the dramatic decline in the prices of oil during 1998, as well as by reductions in oil exports partly, due to the US and UN sanctions. However, the rise in oil prices in 1999 led to a significant growth of oil export revenues, which improved the macroeconomic balance and helped to energize the economy as these revenues more than doubled to $11.0 billion in 2001 and $10.3 billion in 2003.

Meanwhile, Libya's real GDP growth rate had been negative, standing at -2.3% for the period 1992-96 and showing only 0.5% growth in 1997. Yet, following years of economic recession, real GDP had increased by around 4.5% in 2000, owing to a favourable swing in the oil market (EIU, 2001a).

After more than eight years of their imposition, the U.N. suspended its economic and other sanctions against Libya on April 5, 1999. Since then, Libya has been trying to increase its attractiveness to foreign investment, and many foreign companies have visited Libya to search for lucrative contracts. It is therefore hoped that Libya will reduce its dependency on oil as the country's sole source of income, through increased investment in agriculture, fisheries, tourism and mining (ibid 2001a).

The Libyan economy will therefore continue to rely heavily on oil revenues, while the authorities are keen to attract foreign participation in a number of non-oil sectors. Libya's first government-sponsored foreign investment conference was held in Tripoli in November 2000, followed by another conference in London in July 2001 which focused

on investment in Libya in the hydrocarbons sectors, manufacturing, financial services, tourism and housing (EIU, 2001a). As Colonel Qadhafi argued in 2000:

> *"The Libyan economic system in not opposed to investment, development, foreign capital and foreign participation"..... "there is no prospect of nationalization of foreign investment at all"*(EIU, 2001a).

2.2.4 Foreign Trade

Foreign trade is an engine of growth. Historically, trade-led growth has been the bulwark of development policy in both the industrialised and the developing countries alike. Before the oil bonanza, the foreign trade sector was very small indeed in Libya. However, the rise in exports is likely to reflect the significant developments that have occurred with regard to the foreign trade sector.

In the case of Libya, there are no financial constraints on foreign trade. After the oil discovery in the early 1960s the trade balance of payments has registered surpluses. Furthermore, the discovery of oil and the development of the oil industry have accounted for this high rate of growth in imports as well as in exports. On the other hand, Libyan foreign trade in the 1970s and 1980s was completely controlled by the government. However, given the main goals of the state to reduce the dependency of its economy on foreign trade, it has adopted a slogan from the Green Book Part II, which reads “No freedom for people who are eating from overseas". Therefore the only way forward is to focus on the self-sufficiency programme (Oreibi, 1985).

However, petroleum is the main item in Libyan foreign trade, representing around 95 per cent of total export earnings. However, the share of crude oil has dropped following the rise in the exports of refined oil and natural gas (EIU, 1991a).

Table2.16: Foreign Trade ($ billion)

Figures	85	86	87	88	89	90	95	2000	2002
Export fob	10.9	6.4	7.2	7.0	7.5	11.0	8.0	10.0	8.0
Import CIF	-4.0	-3.3	-3.6	-4.4	-3.8	-8.0	-4.1	-3.7	-4.4
Balance	6.9	3.1	3.6	2.6	3.7	3.0	3.9	6.3	3.6

Source: *IMF, Direct of Trade Statistics Year Book 2004; OPEC, Annual Statistics Bulletin in EIU, 1991.*

By the year 1985, exports were only $10.9 billion or less than half their level of $21.9 billion in the 1970s. Furthermore, following the crash in world oil prices in 1986, the total earnings from exports fell to $6.4 billion, and although export receipts have recovered in subsequent years; they remained below their 1985 level until the end of the decade and reached only $8.0 billion in 2002 see table 2.16.

The petroleum sector remained the engine of economic growth, and made the highest contribution to total GDP in the 1990s and for at least the next ten years. However, the EIU (2001b) forecasts that a return of some growth in the economy will be reflected by the rise in the imports of goods and services, seriously affecting foreign trade.

Given its location in the Mediterranean basin, Libya has had a long experience of trade with Europe. Yet, despite the ambivalent relationship between Libya and the European countries, Libya's trade relations will remain as strong as ever with its nearest neighbouring markets in Europe. The major pattern of foreign trade with western countries is that Italy and Germany have been dominant among Libya's trading partners,

with the ex-USSR being a more important market than other countries as shown in table 2.17.

The trade figures clearly explain Libya's access to the industrialised world and Italy, Germany and Spain are likely to absorb 80 per cent of its exports, generating 75 per cent of its imports. The main partners are Germany, Italy and the United Kingdom, besides Turkey which is a major developing world trade partner given the fact that trade with the United States of America is still blocked in the aftermath of its trade embargo on Libya since 1982. Table 2.17 shows trade patterns in the 1990s, and this picture was very similar in the 1970s and 1980s (EIU, 2001a).

Table2.17: Percentage Distribution of Libyan Trade, 1989-2000

% Exports	1989	1990	1991	1992	1993	1994	1995	1999	2000
Industrial countries	93.2	84.5	88.2	86.4	90.3	87.9	85.2	83.3	85.3
Developing countries including:	6.8	15.5	11.8	14.6	9.7	12.1	14.8	16.7	14.7
1) Africa	0.5	2.7	3.3	3.1	3.4	4.9	4.9	6.7	5.2
2) Asia	2.2	0.2	0.7	1.4	2.4	0.9	2.1	7.0	8.0
3) Eastern Europe	3.7	11.6	7.1	9.3	2.6	4.8	6.7	2.5	1.0
4) Middle East	-	0.9	0.4	0.6	1.2	1.0	0.9	0.5	0.5
5) Others	0.3	0.1	0.3	0.2	0.1	0.5	0.2	0.0	0.0
% Imports									
Industrial countries	71.5	75.3	71.2	68.9	75.1	75.2	74.9	62.7	60.2
Developing countries including:	28.5	23.7	28.3	31.1	24.9	24.8	25.1	36.3	39.8
1) Africa	5.4	4.6	6.2	9.0	7.3	7.6	7.9	8.3	9.6
2) Asia	7.1	7.1	7.6	8.0	4.2	3.8	4.3	13.2	12.5
3) Eastern Europe	13.6	8.8	9.7	9.9	8.6	7.5	7.4	6.2	5.9
4) Middle East	0.2	1.5	2.7	2.4	2.5	3.5	3.4	3.5	3.9
5) Others	2.2	2.7	2.1	1.8	2.3	2.4	2.1	5.1	7.9

Source: *IMF, Direction of Trade Statistics Yearbook 1996, 2000 (Washington, DC.: 1997) in EIU.*

In 1989, the government made the decision to follow trade liberalisation No: 249/89, which opened up the import trade to private companies. This is having some impact according to IMF, such as creating opportunities for individuals and partnerships to play a vital role in the economic process.

2.3 The Financial Sector

This section gives some background information about the financial sector and in Libya. It will be divided into two subsections, first discussing the financial sector and financial institutions and describing the general characteristics and evolution of the banking system in Libya; and secondly explaining the role of the banking sector in the development plans. Moreover, information concerning the monetary authorities and goals and the role to direction of the banking system can be found in appendix one.

2.3.1 The General Characteristics of the Financial Sector

2.3.1.1 Financial Markets

Libya is a new country. Before 1951, it consisted of the three provinces of Tripolitania, Cyrecenica, and the Fezzan ruled by the British and French Administration, with no government, no resources, no monetary system, and no banking sector. The Libyan economy lacked the active and efficient money supplies as well as capital market, and those factors were the main reasons behind Libya's poor pre-oil economic performance. Furthermore, the Libyan people preferred to own real assets rather than financial assets. Generally speaking, the Libyans would believe that making profits out of the activities of others contradicts the teachings of Islam. Moreover, the range of capital market instruments has been very limited. This may have led to reduce opportunities for the Libyan banking sector to managing their resources. For example, commercial banks suffer from high liquidity, recorded at LD 1.4 billion at the end of the year 2000; this figure exceeds the reserves requirement by 144% (CBL, 2001b).

Nonetheless, the government intervention into the financial markets has become marked, with the government taking full control of some institutions of the financial sector, while keeping the upper hand in others by allowing only 49% to be owned by the public. This situation had continued until 1978 and then, as mentioned in section 1, until the 1990s no private sector existed in Libya (Baryun, 1984).

2.3.1.2 The Financial Institutions

The following paragraphs examine the financial institutions in Libya. The financial sector in general is divided into two parts: the banking system and financial and investment companies. However, until the year 2000, 57 banks were operating within the Libyan banking sector. Five of these banks were fully state-owned commercial banks, whereas 47 were domestic banks (Al-Massarif Al-Ahleya) that opened during the period 1997-2000. One private bank was opened in 1995 in addition to the already existing four state-owned specialist banks, as shown in figure 2.1 (CBL different issues).

This situation affected banking performance, resulting in poor management quality, and a lack of internal control systems, as found in questionnaire results in chapter six (such as increased levels of cases of corruption). In addition, this led to deterioration in the quality of services. For example bad loans, which in some banks reached more than 50% of total loans, and leading to reduced overall efficiency levels in commercial banks by 6% (from 85.4 to 79.8 per cent). Moreover, since the nationalisation and Libyanisation programmes, the objectives of commercial banks have shifted to become channels to facilitate credit to pre-selected sectors. For instance, average of the ROA ratio, in most of the 5 commercial banks stood at less than 2% during the period 1980 and 2000.

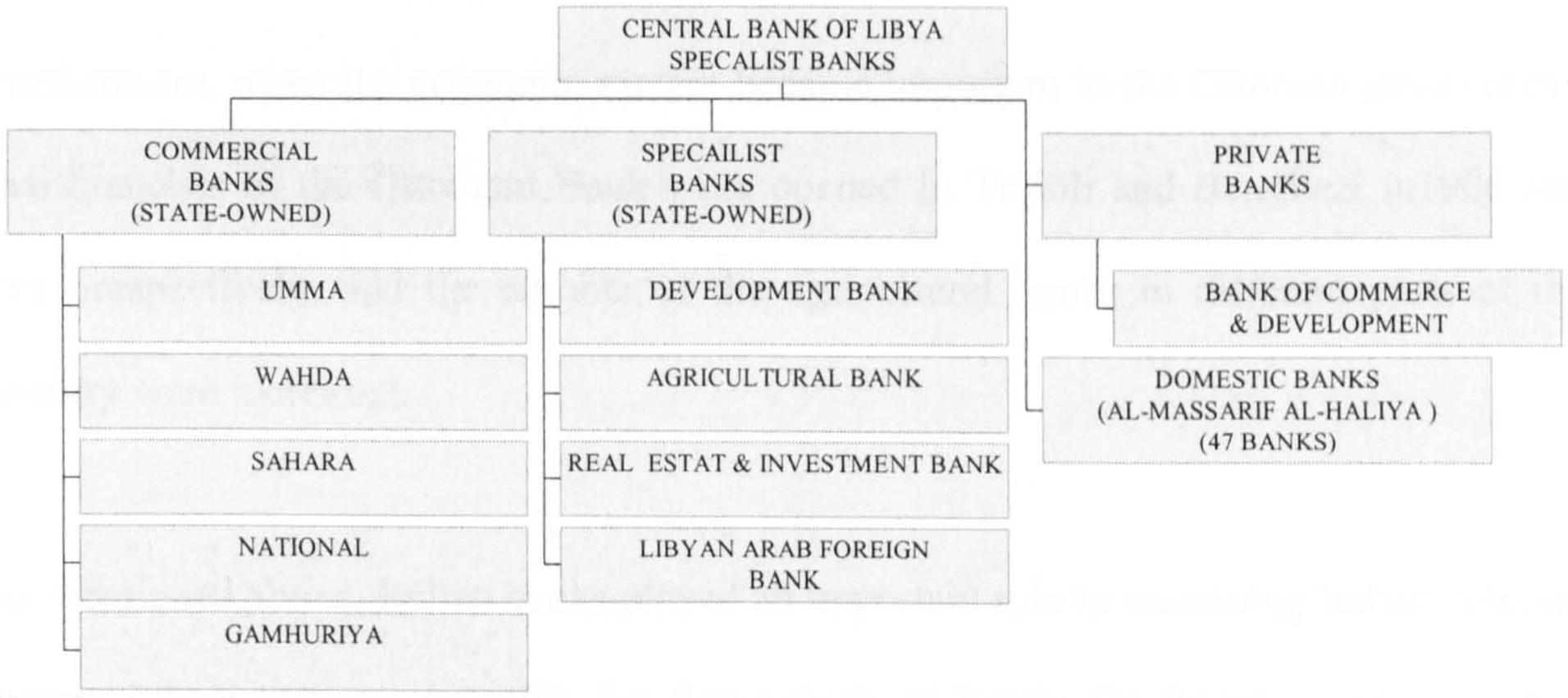
However, to be more precise, banks can be divided into state-owned and private banks. This classification will be examined with regard to recent developments in the banking sector in Libya. Finally, the financial, investment, and service companies will be classified as companies that are strongly linked to the banking system. These companies include the Libyan foreign investment company, insurance companies, and foreign exchange and financial services companies.

2.3.2 Banking sector Evolution, Developments and Types

2.3.2.1 The Central Bank of Libya

In 1955, The National Bank of Libya was established to replace the Commission. Until now this Bank has seen many changes, and the evolution of the bank and objectives and its roles in issuing the national currency and in the Libyan banking sector are investigated in appendix One.

Figure 2.1: Structure of the Libyan Banking System



Cited by researcher.

2.3.2.2 The Evolution and Development of the Commercial Banking Sector in Libya

The evolution of the Libyan banking system involves three important stages after to 1951. These are the Libyanisation of banks, nationalisation, and then recent developments in the banking sector. The evolution of these banks and objectives and their roles are investigated as follows:

2.3.2.2.1 Before 1951

In the mid nineteenth century the importance of the Libyan economy had become recognised by the Ottoman government. Nonetheless, the Libyan economy was mainly dependent on agriculture and trade. Hence to improve its economic performance the government established relevant financial institutions that tended to reflect the importance of the agriculture sector to the Libyan economy. So in 1868 the first agriculture bank in Libya was established in Benghazi, followed by another in Tripoli in 1901.

Furthermore, when the economic system became important to the Ottoman government, two branches of the Ottomani Bank were opened in Tripoli and Benghazi in1906 and 1911 respectively, and the number of the agricultural banks in different parts of the country were increased.

As mentioned above, Italian banks played an important role in sustaining Italian colonial rule in Libya. Hence, in 1907, the first branch of Banco De Romea: was opened in Tripoli, followed by two more branches in Benghazi and Derna in 1912. This opened the

door for other Italian banks such as Banco De Napoli, De Banco of Sicily and the Bank of Italy, to establish branches in Libya (CBL , 1976).

However, the main objective of these banks was to facilitate the credit process to Italian settlers, given the fact that during the Italian occupation era, both the Libyan banking sector and the monetary system were linked to the Italian banking system. Nonetheless, at the end of World War II in 1945, this situation changed, since the Italians left Libya giving way to the French and the British administrations to take over the country. Hence the Italian lira had been replaced by different currencies including the Egyptian pound in Cyrenaica, the Military Authority Lire (MAL) in Tripolitania, and the French Franc in Fezzan (Linder, 1953).

Consequently, the Italian banks in Libya were closed and the monetary system broke down. Banking activity was then limited to a branch of Barclays Bank, which played the role of central bank to the military administration (Ghanem, 1987).

2.3.2.2.2 The Banking System during Independence and Libyanisation

The termination of Italian colonial rule left the economy in total chaos. The closure of the Italian banks in 1943 had resulted in a lack of credit and other banking facilities. Before independence, however, a United Nations subcommittee produced a list of the most urgent services that needed to be provided including, in order of priority, a banking system and a currency (Pelt, 1970). Furthermore, in 1951 a meeting was held in Geneva in which the Libyan Minister of Finance announced a new currency, the Libyan pound,

and appointing Barclays Bank as the agent of the currency authority, joining the Sterling area (ibid, 1970).

Italian banks such, as Banco De Romea, Banco de Napoli, and the Bank of Sicily restarted their activities in the country in 1951, followed by other banks in 1952 such as the Arab Bank, the British Bank for the Middle East, and in 1954 the Bank of Egypt followed by the Algerian Real Estate Bank in 1955.

On the other hand the Libyan National Bank was first founded in 1955 according to the banking law No. 30 of 1955. Its main function was the issuing of banknotes and coins, besides maintaining monetary stability in Libya and playing the role of the government's bank.

In 1958, however, the first unified banking law was issued, stipulating the organisation of credit and money supply and the supervision of liquidity held by commercial banks. Yet, regarding the strong relationship between the Bank of England and the National Bank of Libya the latter was divided into two departments, an issue department and a banking department similar to the Bank of England (Bank of Libya, 1967).

Due to the large number of foreign bank branches; the Libyan National bank was unable to persuade other banks to comply with its established policies, which were in the best interest of Libya. As a result, a new banking law (No 4 of the year 1963) was issued, changing the name of the National bank to become the Bank of Libya, giving it more an extensive authority and new functions. Therefore, under the new law, the function of the

Central Bank became clearer and its supervisory role over the commercial banks was enhanced.

Consequently, the other motivation of banking law No. 4 of 1963 was to Libyanise all commercial banks. The rationale behind the law, according to the Libyan government, was that all foreign banks in Libya were not working in the best interest of the country but rather for the interests of their parent banks. The main purpose behind the government's policy of Libyanisation was to encourage and promote the local banking industry. Consequently, to confirm the dominance and control of the Bank of Libya the law stipulated that 51% of the capital of every foreign bank was to be owned by the Bank of Libya.

The 1960s were marked by the Libyanisation of the banking sector was adopted by the Bank of Libya in compliance with the Banking law No. 4 of 1963. Some of the foreign banks, however, accepted the new policy and became incorporated into the new system as follows:

- The Commercial Bank was 51 per cent owned by Libyans and the Eastern Bank by 49 per cent.
- The African Banking Company had 51 per cent of its capital owned by Libyans and the remainder was owned by the Tunisian-Algerian Real Estate Bank.
- Nahda Arabia bank 51 per cent owned by Libyans and 49 per cent by the Bank of Egypt.

Secondly some banks were owned by two or more partners:

- Sahara Bank, 51 per cent of capital was possessed by Libyans, 29 percent by the Bank of America, and the remainder (20 per cent) by the Bank of Sicily.
- The Bank of North Africa: the Libyan government owned 51 percent, 39 per cent by the British Bank of the Middle East and the Morgan Guaranty Bank owned only 10 per cent.

The two biggest banks, Banco de Roma and Barclays Bank followed by Banco de Napoli and the Arab bank, refused the Libyan government policy. Under the new policy the commercial banking sector consisted of nine banks, including the commercial division of the Bank of Libya (Bank of Libya, 1967).

2.3.2.2.3 The Nationalisation Period

As mentioned earlier in the introduction to this section, the new government that took control in Libya on the 1st of September 1969 viewed the banking sector as a primary objective of its general programme of Libyanisation and nationalisation. In November 1969 the Revolutionary Command Council (RCC) required that all banks in the country should be Libyan-controlled, especially, the remaining branches of foreign banks in the country, namely Barclays Bank, Banco di Roma, Banco di Napoli, and the Arab Bank. This completed the process which had started in 1964, and accordingly the state owned 51 per cent of their capital (Abdussalam, 1985).

However, the Banking law No. 153 issued in December 1970, declared the nationalisation and reorganisation of all foreign commercial banks. Consequently, the

government, represented by the Bank of Libya, would own all foreign shares in all commercial banks. Commercial banks were reduced to only five banks, due to the mergers that occurred between some of the former banks, and given the fact that Libyan citizens were permitted to purchase shares in these banks (Libyan Banking Law No. 153, 1970).

Furthermore, the name of the Bank of Libya was changed by the banking law No. 63 of 1971 to become the Central Bank of Libya (CBL), and it was given more power to control and supervise commercial banks. Yet, until 1970, the commercial division of the CBL also carried out commercial operations, but in that year the National Commercial Bank was founded to undertake the commercial operations on behalf of the CBL.

The commercial banking sector then consisted of only five banks, of which the government owned three: Umma Bank, Jumhoriya Bank, and the National Commercial Bank, whereas in the cases of the Wahada and Sahara Banks the government owned 51 per cent of the capital and the remaining 49 per cent was owned by the public.

According to the articles of the Banking law No. 63 of 1971, the CBL would act as a co-ordinator and watchdog of the operations of the commercial banks, and would encourage various economic activities in accordance with state policies. However, following the introduction of more socialist measures in 1977, all banks became completely stated-owned (Abdussalam, 1985).

Nonetheless, despite the recent developments of the 1990s and in the new millennium, the banking sector in Libya is still controlled by the state. These developments will be investigated later in this chapter.

2.3.3 Specialised Banks

1) The Industrial and Real Estate Bank (IREB)

As a result of the Libyan economic conditions in the early 1960s, the rate of migration from the countryside to the big cities had sharply increased, leading to sharp increases in house prices. Meanwhile, the government had become aware of the fact that commercial banks were unwilling to invest in the housing industry. Consequently, in 1965 the government established the Industrial and Real Estate Bank (IREB), in order to extend long-term credit for housing and industrial projects without interest on its loans. The capital of IREB was 10 million Libyan Dinars financed by the government, and this figure further increased to LD45 million in 1969, fully financed by the government (IREB, 1969-70).

The IREB continued its operations until 1981, when it was liquidated and merged with the National Investment Corporation (NIC). In the aftermath of this merger, however, three new enterprises were established, which were the Real Estate Saving and Investment Bank, the Development Bank, and the Libyan Foreign Investment Company.

- **The Real Estate Saving and Investment Bank**

According to law No. 2 of the year 1981 the Real Estate, Savings and Investment Bank was established with an authorised capital of LD 100 million. The new bank was

assigned to support construction development activities, and to extend credit facilities towards the accomplishment plan (CBL, 1984).

- **The Development Bank**

This bank was established according to law No. 8 of 1981, and it follows the Secretariat of the Treasury, with a stated owned capital of one hundred million dinars. The bank offers loans to finance the investments required for industrial, agricultural, and tourism projects. Besides, this it provides production projects with technical advice.

- **Libyan Arab Foreign Investment Company (LAFIC)**

The Libyan Arab Foreign Investment Company has shares in the associated Libyan Company. As mentioned above, this company was established according to the law No. 6 of 1981. More details concerning the objectives and role of this company in the Libyan economy will be given in brief in the following subsection in page 52.

2) The Libyan Arab Foreign Bank (LAFB)

During the 1970s and 1980s, the rises in oil prices resulted in large income surpluses for the Libyan economy. Therefore, the Libyan government considered investing income surpluses by establishing a specialist bank to manage foreign investment (Economic Directory, 1984).

The LAFB was opened in June 1972 in accordance with law No.18 of 1972, with a total capital of LD 20 million fully paid by the owner (i.e. the Central Bank of Libya), rising to LD 222 million in1999. This bank is mainly concerned with foreign banking activities

such as the world financial markets as well as financing development and investment projects in accordance with commercial principles.

The main activities of the LAFB cover the following areas:

- To take part in foreign financial enterprises and activities.
- Issuing, buying, and selling shares, as well as other international financial documents.
- Accepting and giving short-term deposits as well as on-demand deposits.
- Financing foreign trade.
- Issuing credit letters (Economic Directory, 1984).

The bank also extends its activities to include foreign residents and foreign companies working in Libya. However, since it was established, the bank has continued to focus on the development of its financial resources by adopting the same strategy designed to maintain a tradition of financial strength coupled with high quality service provision. The total assets and liabilities of the bank at the end of 1999 stood at LD 4,5 billion, the total net profits LD 3.50 billion, and the total participation was estimated at around LD 361 million (LAFB, 1999).

3) The Agricultural Bank

Prior to the oil discovery, the Libyan economy was dependent on agriculture. Due to the lack of natural resources, the government proceeded with the establishment of this bank in order to support small farmers by offering agricultural credit and sustenance to fight plant disease, as well as to provide assistance to cope with other agricultural problems.

This bank was founded under the provision of law No. 18 of the year 1955, and started its operation in 1957 with an authorized capital of LD 5 million rising to 10 million dinars in 1970, and then to LD 56 million in 2001 fully paid by the government. The bank is specialised in offering the agricultural credit. It now has 45 branches and offices around the country. Total loans at the end of 2000 amounted to around LD113 million (Agriculture Bank, 2000).

2.3.4 The Financial and Investment Companies

1) The National Investment Corporation

This corporation was established in 1971 with a capital of 4 million Libyan dinars. The commercial banks contributed 30 per cent of this capital, and the other 70 per cent was shared between the National Institution for Social Security (30 per cent), the General Housing Institution (30%), and the Libya Insurance Company and Al-Makhtar Insurance Company paid the remaining 10%. It serves as an intermediary between the suppliers of funds, such as commercial banks and other financial institutions, and customers who use these funds, such as publicly owned companies involved in housing and many other projects (in areas such as tourism through share equity in many hotels in the country). The activities of the National Investment Corporation continued until early 1981, when it was liquidated and merged with the Industrial Real Estate Bank to establish new enterprises (CBL, 1973).

2) Libyan Arab Foreign Investment Company (LAFIC)

As mentioned earlier, the LAFIC was established by the provision of law No. 6 of 1981, following the liquidation of the National Investment Company, Industrial Real Estate

Bank and the Real Estate Investment Company. The main purpose of the establishment of the LAFIC has been to run, control and manage Libyan investment funds abroad, in areas such as tourism, agriculture, manufacturing industry, marine fisheries. It also aims at expanding economic co-operation with Third World countries to help them liberate themselves from economic subordination to foreign control. To meet its objectives and carry out its responsibility the company has the obligation to establish or contribute towards the establishment and partial or total ownership of projects in the areas related consistent with its objectives, including to:

1) Lend or borrow finance;

2) Carry out all legal obligations regarding its ownership of fixed or liquid assets and properties or other rights by selling, buying, mortgaging, transfer ownership and other aspects of legal activities;

3) Carry out any other activities that ensure the fulfilment of its aims or activities delegated to it within the framework of the mutual agreements between Libya and other countries (Economic Directory, 1984).

3) Insurance Companies

Before 1959, there were no national insurance companies in Libya, and all such companies were foreign companies. Moreover, those companies were in excess of Libyan's demand. The first insurance law in Libya regarding supervision and control was issued in 1959 (Bank of Libya, 1970). However, by the year 1969, there were more than 30 insurance companies in Libya; four of which were Libyan and the rest were either branches or agencies of foreign insurance companies. These companies covered almost all types of insurance activities such as, life, fire, automobiles, and accident insurance.

However, those insurance companies identified as foreign companies were nationalized in 1970. Subsequently, all these companies were merged into two companies, the Libya Insurance Company and Al-Mohktar Insurance Company. The latter was also then liquidated and merged with the Libya Insurance Company. The new insurance company was established in 1998, and government acquired 60 per cent of the capital and the public has been allowed to subscribe to the rest (Bank of Libya, 1966). The Libya Insurance Company has become more important to the Libyan economy given its vital role in many activities such as participation/establishment in the development plans of many enterprises. The total capital of the company was estimated at LD30 million at the end of 1998.

Regarding recent policy in the financial sector in the 1990s, new insurance companies were established in 1997 and 2000. The United Insurance Company was founded and allowed to operate in all areas of insurance activity in the country. Furthermore, two private companies were founded following legal provision in 1999-2000. These two companies are the Al-Hussein Insurance Company and Rabate Insurance Services Company.

2.4 The Role of the Banking Sector in the Development Plans

The role of the banking sector in the Libyan economy has changed since the 1970s, particularly in the area of commercial banking. However, government intervention in the banking system has been markedly important since nationalization and the reorganization of this sector.

The government no longer defined the basic aim of commercial banks as being profit maximising organisations at the expense of the country's economic development plans. Given the significant proportional contribution of the government to their capital, the primary function of these banks was to make contributions to the development of the country in accordance with the government's projected economic and social plans.

Under the Banking law No. 63 of 1971, and the amendment of the Banking law No. 4 of 1963, commercial banking was to become more involved in development plans as a part of Article 2 in banking law No. 63 of 1971, which stipulated:

> *"The Central Bank of Libya shall control and supervise commercial banks, regulate the relations between them, coordinate their activities and follow-up their work in implementation of the general policy lied down for the banking sector, in accordance with the general plans of the state"* (Banking Law No. 63 of 1971 Article 2).

In order to direct the over-increasing potential of the commercial banks to the best interest of the national economy, the CBL instructed the commercial banks to establish a new enterprise in cooperation with other Libyan institutions dealing in the area of economic and social development. Consequently, many new enterprises were established, such as the National Company for Investment, Machinery and Commerce National Company, Tourism and Libyan Hotels Company, Real Estate Investment Company, Arab Reinsurance Company, Libyan Arab Foreign Investment Company, and the Real Estate and Savings Bank (CBL, 1972b).

Yet, to accomplish its duties as advisors to both commercial banks and the government, the CBL directive led the commercial banks towards solving housing problems by granting direct real estate loans, and supporting the nation's economic development

plans (Bank of Libya, 1970). Generally speaking, the activities of commercial banks in Libya were extended to all fields all over the country by guaranteeing government contracts for development plans in housing, agricultural and industrial projects.

2.5 Recent Developments in the Banking Sector in Libya

As mentioned earlier, economic policy changed when the Libyan government adopted the green pestroika (liberalisation) and the economy is now moving towards privatisation. As a result, the government has issued many decrees through the General People's Congress and General People's Committee to encourage the public and foreign investors to invest in the country.

Furthermore, many state-owned enterprises were put on offer to producers; for instance, small hotels, many small and medium factories in light industry and transportation. Nevertheless, the banking sector has remained state-owned, and under full government control. The state has also invited the private sector to invest in the banking and financial institutions. At the end of the 1980s and in the 1990s many developments have occurred in the financial sector. The important of these developments are the following:

2.5.1 The New Banking Law

The state has sought to decrease dependence on petroleum as a sole source for foreign hard currency, by opening the doors to private investors from abroad. This point will be discussed in chapter four.

2.5.2 The Bank of Commerce and Development (BCD)

The Bank of Commerce and Development is a wholly private commercial bank in Libya which was established by Banking law No. 1 of 1993, Banking, Currency and Credit and its amendments, the Secretariat of the People's Committee of Planning and Finance resolution No 234 of 1993 and the Secretariat of the People's Committee of Planning, Economics and Commerce resolution No 529 of 1994. With an authorised capital of LD 9 million, the bank initially started as a stock company in November 1995.

The main objectives of the BCD have been referred to by the second Article of the bank's by-law as follows:

a. *Accepting demand and time deposits, opening the current accounts, granting loans and providing other credit facilities, and granting it for variety terms.*
b. *Collecting and paying notes payable, drafts and other commercial papers, and issue of bank letters of guarantee of all types.*
c. *Discounting and re-discounting and dealing in all kinds of all commercial instruments.*
d. *Financing international trade by providing credit facilities to importers and granting advance financing to exporters.*
e. *Undertaking to achieve the objectives of development by sponsoring agricultural, industrial and services projects to reduce dependence on foreign imports.*

By the end of the year 2000, the BCD had maintained a total profit of about LD7 million, and the bank's balance sheet at the end of 2000 demonstrated significant growth. The total assets and liabilities were about LD315.1 million, and total deposits (current accounts, long term deposits in CBL and commercial banks) were LD192 million. It now has three main branches and three agencies in the country. Two other branches and five agencies were being opened in other cities in the coming years (BCD, 2000).

2.5.3 Foreign Exchange and Financial Services Company (FEFSC)

The FEFSC is a Libyan Stock Company, which was founded in accordance with the Commercial Law and Law No. 65 of 1970, and the resolution of the General People's Committee No. 611 of 1994, with a capital of LD 7 million equally distributed between current owners. The shareholders are the Libyan Arab Foreign Bank, the Libyan Arab Foreign Investment Company and the commercial banks operating in the country (Umma, Wahda, Sahara, Gamhuriya, and National Commercial Bank).

The Board of Directors of FEFSC has decided to increase its capital to LD10 million. The aim of the company has been to engage in financial services and in foreign exchange within the country. The by-laws of the FEFCS's outline its general objectives as follows:

> *"Selling and buying of foreign currencies; issuing and marketing of traveller's cheques; issuing of credit cards and other means of payment; buying and selling of securities and shares and other banknote; and ownership of movable assets and real estate as the company may need to carry out its activity".*

To meet its objectives, the company may enter into partnership and co-operation in many ways with banks, financial institutions and other local and foreign investors in securing funds for its activities, including lending to and borrowing from banks and other financial institutions inside and outside the country (FEFSC, 1995; 1996).

2.5.4 Domestic Banks (Al-Massarif Al-Ahliya)

The Libyan Arab Jamahiriya witnessed many developments in the socio-economic area. As a result of the government intentions to achieve effective privatisation and liberalization policies, forth-seven domestic banks were established according to law

No.1 of 1993, in different cities in the country. These banks are controlled by a state-owned National Banking Corporation.

The main objectives of the domestic banks are the following:

- Acceptance of deposits and opening current accounts.
- Offering all kinds of credit facilities to fund economic, industrial, and tourism projects.
- Creating new opportunities for investment.
- Practising all commercial activities allowed by the banking law No. 1 of 1993.

The total capital of the domestic banks in 2000 was 60 million Libyan dinars, and the total deposits were LD547.0 million, where 28 percent of these deposits (LD 153 million) belonged to the private sector (CBL, 2000). Further discussion is given in chapter four.

2.6 Summary

Over the last century, the Libyan economy has been completely transformed from being one of the poorest countries in the world to one of the highest annual per capita incomes in the world. Prior to the discovery of oil, the Libyan economy was primarily dependent on agriculture, which was mainly limited and constrained by climate and other conditions. Furthermore, Libya had undergone difficult economic conditions: limited resources, low levels of trade activity, high rates of unemployment, low skills, lack of education, and no banking and monetary system. Therefore, these conditions had left the state totally dependent on foreign and military aid.

This situation has changed significantly since the first shipment of crude oil, improving GDP growth, imports, and per capita income. However, the phase of the *rentier* State began when Libya has became heavily dependent on oil revenues. On the other hand, development plans commenced from 1963 until 1986 with different goals, objectives and priorities. The first plan concentrated on the modernisation of the national infrastructure, whereas the second and third development plans in the 1970s focussed on self-sufficiency by encouraging higher agriculture production and industrial activity aiming to reduce dependency on oil revenues.

At the end of the 1970s, the government by adopted a new socialist economic system. The Libyan economy became completely centrally planned and controlled by the government. Consequently all activities became state-owned, and the private sector was completely abolished until 1989. As a result of its dependence on the oil revenues, the Libyan economy was adversely affected by oil price fluctuations since the1980s, and oil revenues fell from $14.2 billion to $5.2 billion. Therefore the Libyan economy began to face severe difficulties as many projects had to cease while others were frozen. This acute situation forced the government, led by Colonel Mummer El-Qadhafi, to introduce a new economic system bringing about privatisation in the form of small-scale private ownership.

Moreover, Libya suffered from US and United Nation sanctions which cost the country billions of US dollars, causing a significant decline in oil's contribution to total GDP from 65 % in 1970 to only around 40 % in 2001.

Before 1956, there was no reliable banking or monetary system in the country. The banking sector consisted of many branches of foreign banks, mainly affiliated to the Italian banking system. The Bank of Libya was the first national state bank, and was founded in 1956. It played a vital role in promoting the Libyan banking system. However, since then many banking laws were introduced from the1960s to 1990s, in order to enhance the functions of the banking system and the related monetary policies.

Libyanisation and the nationalisation of the banking system, on the other hand, were the most important steps taken in the 1970s. Furthermore, the banking sector had been allowed to become more involved in the development plans using the credit facilities they provided and by making contributions to the new enterprises directly involved in the development projects. Generally speaking, in the 1990s many significant developments in the financial sector occurred. Private banks were reinstated, and many by-laws and redemption policies have been enforced to enhance foreign investment.

To sum up, this chapter has referred to many environmental factors that have affected the Libyan banking sector, including the economic and political regimes. For example, oil revenues have given the Libyan government sufficient funds to allow it to play a major role in development. This factor has encouraged the Libyan government to commence establishing an independent monetary authority by taking advantage of the new situation of economic recovery following the oil discovery.

The Libyan banking sector, therefore, has been subject to various levels of regulation, including restrictions on entry and exist, reserve and liquidity requirements, number of

branches, interest rate on deposits and credit, and limitations on and the direction of credit facilities. Consequently, the Libyan banking sector has become a state-owned enterprise and its objectives have been adjusted accordingly in order to provide crediting facilities to public sector organisations.

CHAPTER THREE

DEVELOPMENTS IN THE BANKING INDUSTRY AN INTERNATIONAL PERSPECTIVE

3.1 INTRODUCTION

The banking sector plays a special role in the economy as an intermediate body between the suppliers and the users of funds (Christopher et al, 2002). Banks receive funds from depositors (suppliers), and in return they assure depositors that their money is used efficiently and monitored carefully. However, the functions of banking institutions have become recently significantly broader; as both the products and the geographic markets have become much more integrated. Therefore, banks have tended to provide new services such as credit cards, discount, brokerage, leasing, options, swaps, and futures and trust services.

Over the last two decades, the globalisation of the financial market has gained additional force as a result of the liberalisation programmes undertaken by various countries. As a result, these financial institutions face today a fast-paced, dynamic, and competitive environment on a global scale. Within such a competitive environment, these financial institutions are forced to examine their performance, because their survival in the dynamic economics of the twenty-first century will be dependent upon their productive efficiencies. For the past twenty years these circumstances have prompted many countries to liberalise their financial sector through deregulation in order to improve and efficiency performance (Denizer et al., 2000).

The rapid expansion and growth of banks have rendered them more vulnerable to crisis leading to the shaking of public confidence and the deterioration of the quality of their services. The 1980s and 1990s have witnessed major banking crises in many developing and industrial countries (Honohan, 1997).

Yet, it can be argued that the banking system plays an important part in the financial structure of the state that bears the responsibility to maintain the confidence of the public in the integrity and security of banks. Such integrity and trust is maintained at the international level through the World Bank (WB), the International Monetary Fund (IMF) and the Basle Committee, ensuring a sound and efficient banking sector through continual reforms. However, the main objective of these reforms is to increase the efficiency of banking operations. The general structures of the financial service industry are changing rapidly. As discussed earlier, commercial banking is expected to be managed efficiently, prudently, safely, and profitably. Thus institutions should become more efficient by improving profitability; larger amounts of funds intermediated; maintaining competitive prices; raising the quality of services; and offering greater safety and soundness.

It is noteworthy that the international economic environment has experienced major changes in recent years owing to globalisation. Furthermore, the financial sector has also witnessed fundamental changes including the consolidation of organisations and increasing of competitiveness. It therefore becomes logical to assume that globalisation would affect banking efficiency. These situations have encouraged many countries to liberalise their financial sectors through deregulation in order to improve efficiency in

performance and to increase the soundness of banking systems. However, the link between deregulation and improved efficiency has been established by some studies. For example, Bhattacharyya and Kumthakar (1997) found that deregulation had a major impact on productivity and efficiency in the Eastern and Central European countries and China, whereas other studies have suggested that efficiency has remained unchanged following the deregulation measures undertaken by the US banking system (Bauer et al., 1993). However, Humphrey and Pulley (1997) have concluded that productivity has fallen following the deregulation of banks in the US in the 1980s and the early 1990s.

Financial sectors in developing countries, including the Arab countries, have traditionally been characterised by relatively high levels of government control. Therefore, the liberalisation and deregulation process has tended to reduce direct government control and strengthen prudential regulations.

Thus, this chapter aims to critically examine the role of the banking sector and its associated problems with regard to performance and efficiency. In addition, it will review the relevant literature that highlights the potential problem faced. Therefore it will be more appropriate at this point to discuss the research procedures as depicted in figure 3.1. The concept of efficiency in banking firms will be considered in chapter 5. In the present chapter, the main focus is to illustrate the banking sector in the world and problems affecting its performance

Figure 3. 1: Research concept

Role of banks	*Bank performance* →	*Problems* →	*General resolution* →	*Particular resolutions in the case of Libya* →	*Outcome* →
Intermediary Approach →	To find out the bank's problems by evaluating its performance (DEA technique & financial ratio)	Government controlled banking system Size of non-performing loans Inefficiency Weak internal control systems (Mismanagement, fraud)	Decreasing government shares (privatization) Enforcing banking laws Prudential regulation and supervision of banks Strengthening lending policies (by adopting market norms for lending Classification of loans and provision for doubtful debts Strengthening internal control systems based on Basel core	Introducing financial reforms Activating the CBL rendering it more independent) Implementing and activating the banking laws Restricting and reducing government intervention Privatization of state-owned banks Classification of loans and loan provision for doubtful debts Rebuilding internal control systems by adopting Basel committee core	**Efficiency**

Cited by researcher

The next section reviews the development of the banking industry and its roles. Section two discusses financial and banking crises by looking at their causes and effects on the banking industry. The subsequent section highlights the main problems that have intensified these banking crises, and which have prompted international cooperation in the main banking reform. For the evaluation of the experience of banking reform in regard to developing economies, the final section will examine recent banking policies in Malaysia and Saudi Arabia as cases in point.

3.2 The Banking Industry in the Global Economy

Generally speaking, banks are the financial institutions that accept deposits and provide loans and other funds for investment. Through banks funds can be circulated between savers and investors, and therefore banks play a major role in the process of economic development as a whole. However, the process of transferring funds from banks (lenders) to investors (borrowers) is known as "indirect finance" (Mishkin, 2003).

Commercial banks are the financial intermediaries that raise funds primarily by issuing demand, time and savings deposits. These activities demonstrate that the commercial banking system is vital for the economy to function properly. However, the ability of the commercial banking system to perform efficiently and in harmony with our needs and economic goals depends, to a great extent, on the efficiency of its management (Reed et. al, 1984).

From a historical point of view, people have engaged in financial transactions since the early twelfth Century. Moreover, banking institutions arose in the city-states such as Genoa in the twelfth century and in Florence and Venice some time after the twelfth century (Merton and Bedie, 1995), giving rise to merchant bankers as well as an important group of banking institutions. These banking institutions, however, have dealt with bills, goods and thereby providing for the transfer of funds and payment of accounts, at a distance but without shipping actual coin (Wilson, 1986). Besides demand deposits, they organized exchanges for trading financial future contracts and other financial derivatives (Merton and Bodie, 1995). The evolution of the banking industry has a long history. For example, English bankers in particular had begun to

develop a deposit banking business as early as the seventeenth century. Nonetheless, the demand for larger banking units has been generally associated with the pace of economic growth.

Models of banking systems across the globe began with many types. The English model, for instance, was primarily developed on a deposit banking business and was conducted on the basis of a large number of small private banks. As a result of the significant increase in banking activities, an urgent need for adopting new legislation meant that banks are made eligible to become joint stock companies, which would be likely to pave the way for the wider population to contribute to their capital.

The banking system in the US, on the other hand, consists of a small number of commercial banks with widespread networks of branches, centrally controlled by so-called "unit banking". Banking organization in the United States is thus very different from that of England. The third model of banking structure is the 'hybrid' system, which was adopted in France and India. The hybrid bank model in France has large banks with nationwide networks of branches (Willson, 1986).

In recent years, the banking sector in developed countries has changed significantly. The first model of banking system based on 'market-orientation' has a fragmented shareholding structure, resulting from the distribution of shares through capital markets. So, banking efficiency is driven by the consideration of maximising the market value of the corporation (Copeland et al., 1996). The second type of banking in developed countries is considered as 'bank-based', such as the Japanese and German banks. Bank-

based models historically played an important role in industrialisation in most economies in the world (Franck and Hudson, 1984).

3.2.1 The Functions of the Banking Institutions

Banks as financial intermediaries accept deposits and provide loans and undertake other investment activities for profit. This function is called indirect finance. Thus, the process of indirect finance takes place through financial intermediation (Mishkin, 2003). Cameron et al (1972) summarise the functions of the banking system as follows:

> *(i) Intermediation; (ii) to furnish part of all means of payments or money supply; and (iii) provision of entrepreneurial talent and guidance for the economy as a whole.*

The functions of banks usually come in different forms. The basic and main functions are to accept and safeguard customers' money deposits and allow the withdrawal and the transfer of money from one account to another locally or abroad. Furthermore, they lend the surplus of the deposited money to customers who are willing to borrow. Therefore the banking sector constitutes part of the financial system, which can make significant contributions to economic development through:

a) Mobilising more domestic resources,

b) Dealing with loan and lending problems

c) Improving the quality of investment so as to increase the production capacity of the economy (Taylor, 1973).

However, the ability of commercial banking to perform its tasks efficiently and in harmony with the potential needs of the economy depends, to a great extent, on an efficient management system (Reed et al., 1984).

Like other industries, the financial industry is in business to earn profits by selling its products. The simple function of a bank's balance sheet is:

Total assets = Total liabilities + capital

Furthermore, a bank balance sheet determines the sources of bank funds (liabilities) and uses (assets). Banks obtain funds by borrowing and issuing other liabilities such as deposits. Then they use these funds to acquire assets such as securities and loans. However, to make profits banks tend to charge interest rates on their holding securities and loans and these charges must be higher than the interest expenses on their liabilities.

In order to understand the way a bank manages its assets and liabilities to earn the highest possible profit, the following must be of primary concern to management:

a) Liquidity management,

b) Assets management,

c) Liability management, and

d) Capital adequacy management.

These factors have been used in many banks as internal tools to assess banking performance, and are applied in subsequent chapters in order to measure banking efficiency in conjunction with efficiency scores (more details about these factors are offered in chapters 5 and 6.

To maximise their profits, banks must, at the same time, seek the highest returns possible on loans and securities, reduce risk, and make adequate provisions for liquidity by holding liquid assets.

With regard to modern economies, banks are well known for their role as intermediaries, performing four fundamental services; they provide portfolio management services; they use their liabilities as of payment; they transform liquid assets into illiquid assets; and they monitor borrowers (Yang, 1996). Furthermore, modern banking system should practice three elementary functions: payment settlement and record keeping, efficient intermediation between savers and investors, and the provision of appropriate system-wide liquidity using indirect monetary policy instruments (Stavarek, 2003).

3.2.2 Theories of Financial Intermediaries

Financial intermediaries, and particularly the banking system, play an active and important role in the allocation of resources (Yang, 1996). The functions of the financial system as suggested by Levine (1997) are the following to:

- *Facilitate the trading, hedging, diversifying, and pooling of risk;*
- *Allocate resources;*
- *Monitor managers and exert corporate control;*
- *Mobilize savings; and*
- *Facilitate the exchange of goods and services.*

However, financial development is usually associated with economic development. Nonetheless the financial development can be defined as the increase in financial intermediation reflected by the increased separation between savers and investors.

As Yang (1996) points out, when a system of financial flows involving financial intermediation becomes necessary, the means of regulating this system also becomes very important in order jointly to satisfy the interests of lenders and borrowers. Financial

development tends to start with the banking systems and then gradually spreads to non-bank financial institutions.

During the twentieth century, however, the world witnessed unprecedented technological changes. These changes have also permanently altered the face of banking. However, a sound microeconomic foundation for aggregate economic analysis has been increasingly emphasised. Under this circumstance, a satisfactory theory of bank behaviour appears as an essential condition for a clear understanding of the work of the financial sector (Baltesperger, 1980). A complete theory of banking, however, should not only provide an integrated view of the firm's asset and liability choice, but also the determination of the total size of the firm. Therefore, any discussion involving the banking system as an institution or as an industry should deal with many aspects of the banking industry, including banking structure, risk management, quality of services, profitability, conduct, regulation and supervision. These features would lead to banking efficiency.

Traditionally, bank's acceptance of deposits in order to provide loans for investment was primarily concerned with managing the bank's balance sheet. This model worked well with agriculture and industrial society. In contrast, the recent model has shifted towards a complicated network of new banking services, such as financial derivatives products. This situation may intensify competition within the financial sector in general and in the banking sector in particular (Siems and Klemme, 1997).

However, owing to the complex nature of the subject, researchers are still divided concerning the best model of behaviour of banking firms. In general, the banking field may be studied through two main approaches: the production approach, and the intermediation approach. The production approach treats banks as firms that use capital and labour to produce different types of services for their final customers. An intermediation approach sees banks as providing balance sheet or intermediation services, by transferring funds from one end to another. Moreover, the modern approach seeks to integrate elements such as risk management, agency costs and the quality of services.

The classic theories of intermediation are based on transaction costs and asymmetric information, which have provided the foundation for understanding intermediaries (Allen and Santomero, 2001). However, Gurley and Shaw (1960) have focused on the role of transaction costs. For example, the evaluation of fixed costs of assets means that intermediaries have an advantage over individuals because they allow such costs to be shared. Financial intermediaries exist because of their expertise, among other things, in minimising transaction costs, which can be subdivided into exchange costs, contract costs, and information costs (Benston and Smith, 1976).

On the other hand, numerous authors have stressed the role of asymmetric information as an alternative rationalisation for the importance of intermediaries (Allen and Santomero, 2001). Asymmetric information occurs when different agents do not have identical information. This leads to adverse selection, which is the problem created by

asymmetric information before the transaction occurs. Moral hazards are the second problem created by asymmetric information after transactions occur (Bondt, 2000).

Leland and Pyle (1977) were the first among authors to suggest that an intermediary can signal its informed status by investing its wealth in assets about which it has special knowledge. As Allen and Santomero (1998) have argued, many current theories of intermediation are too heavily focused on the function of institutions that are no longer crucial in many developed financial systems. However, in recent decades there have been significant changes in financial intermediation leading to the development of the financial markets themselves.

Nevertheless, there is little agreement as to what constitutes a workable and productive theory of a banking firm. The main reason for this may be attributed to little agreement concerning fundamental concepts (Klein, 1971).

In the theoretical literature a large number of rival models and approaches are dedicated to banking as a financial intermediary. Yet, some authors emphasise the assets side of the balance sheet of the financial intermediaries (Leland and Pyle, 1977; Diamond, 1984), while others focus on either the liability side (Diamond and Dybvig, 1983), or otherwise focus on both sides of the balance sheet (Pyle, 1971).

3.2.3 Recent Changes in the Market and Intermediaries

Banks have existed since ancient times, taking deposits from households and making loans to economic agents requiring capital. Moreover, banks have played a major role in the alteration of the household sector (savings) to the investment in real assets.

However, the financial systems in many countries have undergone dramatic changes in the last four decades. For example, financial markets such as the stock and bond markets have significantly grown in size. In the meantime, however, in the 1970s and 1980s there has been extensive financial innovation, including a variety of mortgage packages as well as derivative instruments such as swaps and options and futures contracts, which have all experienced a virtual explosion in volume (Allen and Santomero, 1998).

The rise in the breadth and depth of financial markets has been the result of the increased use of these tools by financial intermediaries and firms. Yet, as a result of the dramatic changes in the financial markets, the contemporaneous activities in traditional financial institutions such as banks have also changed. Therefore, to be more precise, the traditional financial theories have been based on transaction costs and asymmetric information, whereas the current financial theories are obviously based on risk management.

Allen and Santomero (1998) have noted that risk management has now become a central activity of many intermediaries, pointing out that most current theories of intermediation tend to consider risk management as an integrated tool in the activities of the intermediaries. They add that the understanding of these changes requires different

theories of intermediation that stress risk-trading management and participation costs as the key reasons for the existence of modern intermediaries (Allen and Santomero, 2001).

On the other hand, Bert and Dick (2000) have introduced a recent view of the theory of intermediation, by focusing on market efficiency. Thus, financial intermediaries are becoming an endangered species. They believed that risk management has not just become important only in the recent past, but rather it represents the root of financial intermediation.

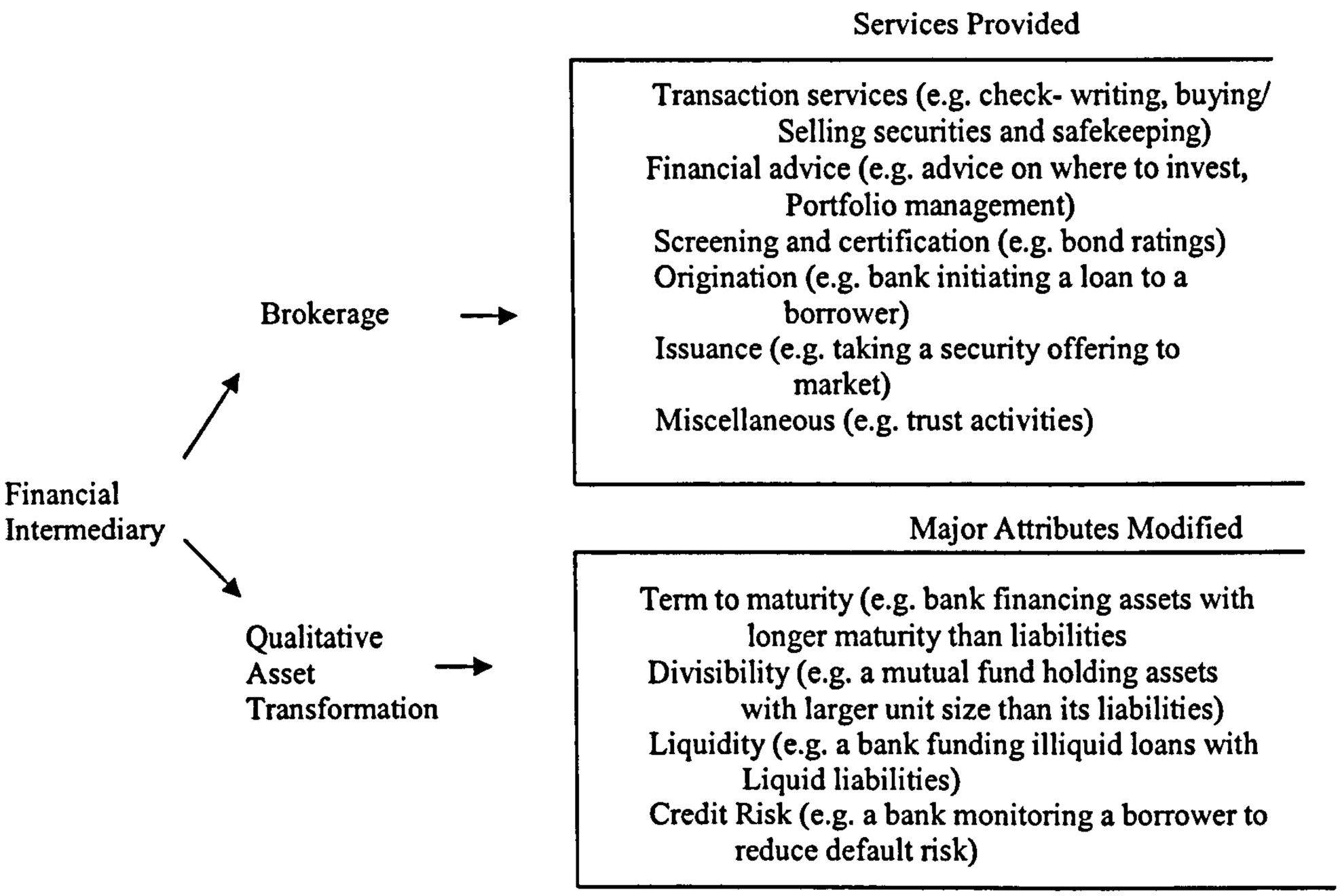
As Cull (1996) suggests, a growing body of evidence has demonstrated that financial sector development is important for economic growth. That development, however, is unlikely to occur without some risk, and the past twenty years have witnessed bank insolvencies in more than one hundred countries.

As mentioned earlier, the world of the financial system has changed significantly. Likewise, banking functions have also been subject to significant changes in the last two decades. Banks have moved away from the traditional role of taking deposits and making loans to firms and customers towards free-producing activities such as trusts, annuities mutual funds, mortgage banking insurance brokerage and transactions services (Allen, and Santomero. 2001). Figure 3.2 gives a summary of services provided by financial intermediation.

Figure 3.2 shows that the financial intermediary now provides many services, which is a reflection of both recent developments in banking activities, and the assumed high risk

taken (Bhattacharya and Thakor, 1993). Moreover, the number of banking activities has increased and banks have become, in many ways, a global industry, which may well have led to many banking problems such as banking crises or banking insolvency in many parts of the world. This may be attributed to the increase in competitiveness among the various banking organisations as well as among other non-financial institutions.

Figure 3.2: Services Provided by Financial Intermediation



Source: *Bhattacharyya and Thakor, (1993)*

Nonetheless, the general structures of the financial service industries are changing rapidly. Thus an institution should become more efficient by improving its profitability, greater amounts of funds intermediated, competitive prices, quality services, and greater safety and soundness (Berger et al., 1993). These changes in the financial industry are occurring around the globe. For instance, the banking industry in the US witnessed a

dramatic consolidation wave in which many of the nation's largest banking organisations merged. Likewise, in Western Europe there has been considerable consolidation of banks within countries in anticipation of EC integration and the accompanying consolidation across the borders of the member countries.

Meanwhile, in Eastern Europe a capitalist style has been adopted, whereas in Asia and South America, countries have started to review the regulations regarding the separation of commercial banking, underwriting and insurance, in an attempt to augment the efficiency of the financial industry (Berger et al., 1993).

However, in order to protect the public from financial crisis, governments have implemented many types of banking regulations, such as restrictions on entry, restrictions on assets and activities, deposits insurance, limits on competition, disclosure requirements, risk assessment, and strengthening banking supervision (Caprio and Klingebiel, 1996).

3.3 Financial and Banking Crises: Reasons and Effects

Since the Great Depression of the 1930s, many banking crises have occurred in many countries in the world. In the 1970s and 1980s, the Third World debt crisis led to the collapse of the banking system in the developing countries. Moreover, the recent financial and economic policies leading to liberalization and privatisation have added insult to injury in many countries the world over.

Many financial crises have occurred in recent times, such as in Latin America and the Wall Street crises in 1987, the crisis in the Nordic countries in the 1990s, and the Asian

foreign currency crisis at the end of 1990s (Mishkin, 2000). The frequency and the extent of stringency of the financial crises in the industrialised and the developing countries has prompted researchers to develop different theories and policies regarding these financial crises, including the fragility of the banking system at both the macro and microeconomic levels.

The macroeconomic approach to financial crises usually seeks to explain the totality of these events through either monetary disturbances or business cycle fluctuation. This approach considers the importance of the banking crises in terms of their effects on the money market. According to this approach, however, banking panics caused by the money market will eventually lead to the contraction of economic activities. Yet, the monetarist model is considered deficient because of its failure to contemplate the more pronounced movements which are characteristic of severe depression and inflation (Freidman and Schwartz, 1963).

Financial crises have recently occurred in developed economies after financial liberalisation, and equally in developing countries that have adopted liberalisation of the financial system, as is the case with the Nordic countries (i.e. Finland, Norway, and Sweden) in the late 1980s and early 1990s. However, factors such as credit expansion, lax fiscal polices, collapses in oil prices, deregulation, and the lifting of exchange rate controls have been the common denominator of fiscal crises in these countries.

The second example of financial crises, which occurred towards the end of the 1990s, was the Asian financial crisis of 1997-1998. The main reasons were huge budget

deficits, the unrealistic appreciation of exchange rates as Asian currencies were linked to the US dollar, large credit booms and weak banking systems. In recent years, however, financial crises have become commonplace in countries within the emerging markets and transition countries (IMF, 1997), For example, both the Mexican financial crisis in 1994, and the crisis in East Asia in 1997 have led to declines in the growth rates of the GDP in the order of ten percentage points, whereas the Russian and Ecuador crises in 1998 and 1999 respectively have had similar negative effects on the real output of the GDP (Mishkin, 2000).

Thus, a financial system must confront problems of asymmetric information in both parties to any financial transaction in the market. Regarding the asymmetric information problems in market transaction in the financial crises, Mishkin (2000) offers the following definition:

> *"A financial crisis is a disruption to financial markets in which adverse selection and hazard problems become much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities".*

The immediate outcome of financial crisis is the inability of the financial markets to function efficiently, which has resulted in a sharp contraction in economic activity. However, it has been suggested that four types of factors can lead to increases in asymmetric information problems, and thus to financial crises. These factors are:

1) The deterioration of the financial sector balance sheets;

2) Increases in interest rates;

3) Increases in uncertainty; and

4) The deterioration of non-financial balance sheets

As mentioned above concerning the financial crises and their effects on promoting factors, the literature attempts to define financial policies which may have helped prevent financial crises: for instance, prudential supervision and regulation, reduction of the role of state-owned financial institutions, legal and judicial systems, development of monetary policies, accounting and disclosure requirements, and exchange rate regimes and exchange reserves (Mishkin, 2000).

In recent decades, many countries rich and poor alike have experienced systematic banking crisis requiring major and expensive overhauls of their financial systems, and particularly of banking systems (Honohan and Klingebiel, 2000). A systemic banking crisis is a situation where an economy faces large-scale financial and corporate distress within a short period of time. Yet, the solution to a systemic banking and corporate crisis involves many policy choices, ranging from macroeconomic policies such as monetary and fiscal policies to microeconomic policies that incorporate capital adequacy rules and corporate governance requirements (Klingebiel and Leaven, 2001).

As has been previously suggested, recent examples include the crises in the Nordic countries in the early 1990s, in Mexico in 1994-95, in the East Asian countries of 1997, and in transition economies in the 1990s.

Banking crises appear to have become more common since the early 1980s. As Caprio and Klingebiel (1996) identify 93 countries experienced a systematic financial crises during the 1980s or 1990s. Moreover, Rose (2001) points out that banking problems are

the root of the crises in Asia. Banking problems occur as the result of over-borrowing and over-lending without strong fundamental regulatory and supervisory means.

Furthermore, Bascom (1994) emphasises that a financial crises in the banking system tends to follow a certain pattern. It might begin with technical mismanagement associated with asset growth and asset concentration errors. Then, as a result of these errors, both profits and capital start to decline; the next stage is *cosmetic* management. At the same time, non-performing loans are renegotiated and replaced by new longer term loans with overvalued real estate or overvalued fixed assets as collateral.

Banking failure in the 1980s was a widespread phenomenon in several developing countries. For example in the Latin American countries which had adopted financial reform policies in the 1970s, government failed to put right the prudential regulation and supervision of their financial institutions.

As Bascom (1994), points out, a commercial bank may be considered insolvent when:

i. *its capital accounts or equity and all its assets are together less than its deposits and other liabilities;*
ii. *it is unable to meet its current obligations as they mature, even though its assets may exceed its liabilities;*
iii. *its equity is exhausted by losses and no immediate prospect for replenishing this equity exists.*

In addition, if the supervision system, disclosure standards, and internal control systems are generally weak, this might lead to banking insolvencies (Rose, 2001).

As stated earlier, the 1980s witnessed several banking crises in developing countries. The causes were mismanagement of the macro economy, an unsound banking system,

sharp changes in commodity prices, and the weakness of prudential regulatory and supervision frameworks. In other words, the banking problems of the 1980s and the 1990s resulted from a combination of inappropriate policies, incompetent management, government intervention, and inefficient institutional frameworks.

A diffusion of the failures of financial systems has occurred in both the developing and the developed countries (Honohan, 1997). The banking crises have hit government budgets with expenditures that have had to be absorbed through higher taxes. Since the late 1970s, more than one hundred systemic banking crises have occurred in 93 countries, and 50 borderline crises have arisen in 44 countries. The costs of these crises in some countries have been estimated at 10-20 percent of GDP, while in others the costs might be as high as 40-55 per cent of GDP (for more details, see Caprio and Klingebiel, 1996).

Governments have used many approaches to try to resolve systematic banking and corporate distress. In a pioneering work, Sheng (1996) has attempted to draw lessons from several banking crises. Caprio and Klingebiel (1996) have also discussed those lessons referring to more countries as examples. However, the main lesson from both studies is that the management of the financial crises in industrial countries is very different from that in developing countries (emerging markets). Because emerging markets have weaker institutions, crises are often larger, and other initial circumstances differ. Conversely, the "best practice" lessons from developed countries do not translate easily to developing countries.

As Rose (2001) argues many lessons can be learnt from the underlying causes of the Asian crises. Banking problems occurred owing to over-confidence in the banking system, inflamed by massive borrowing from abroad. Rose added that in order to prevent behaviour such as over-borrowing and over-lending, the banking system has to impose measures such as capital adequacy requirements, strengthening loan classification, provisioning of rules and the reinforcement of internal control systems.

Furthermore, the central bank should help to build a prudent regulatory environment, so that if a:

> *"Strong financial system is built, the banking system will be more resilient in facing adverse macroeconomic and asset price fluctuations. Healthy banking system will also promote economic growth, which in turn will help balance account deficit that may occurred in the country"* (Rose, 2001).

To resolve banking problems, however, several measures may be implemented to prevent a recurrence of financial crisis (particularly banking crisis). These measures include the establishment of sustainable macroeconomic policies and competent macroeconomic management, and the implementation of a sound prudential regulatory and supervisory framework (Bascom, 1994). These are discussed in the following section, highlighting the features of banking reforms policy.

3.4 The Role of International Organisations in the Banking Reforms: A Review of Reform Rolicies

Episodes of bank insolvency have increased in recent years and few areas of the world have escaped without significant losses (Caprio and Klengbiel, 1996). The boom in

banking crises, both implicit and explicit, around the world in the last 15 years has drawn more attention to this issue.

Recent literature on the banking crises in the developing countries suggests that a variety of macroeconomic and microeconomic factors account for systematic bank insolvency. Based on the results of studies conducted in 29 countries, Caprio and Klengbiel 1996) believed that the main reasons behind bank insolvency are that:

> *"in all of them, deficient management, faulty supervision and regulation, government intervention and / or some degree of connected or politically motivated lending are cited as primary factors behind bank insolvency".*

Economists and other policy advisers have responded to this development with more concerted efforts, involving organizations such as the International Monetary Fund (IMF), the World Bank (WB) and other multilateral development banks and organisations including the G-10 and the Bank for International Settlement (BIS), with the developing countries being at the forefront of their efforts (Caprio, 1997).

As mentioned earlier, many causes of bank failure in various countries of the world have led to an international cooperation focused on the need to reduce financial fragility and systemic risks in the global financial markets. Many international organisations, such as the World Bank, International Monetary Fund, the Bank for International Settlement, and the Basle Committee, have played a pivotal role in the management of the debt crises in the 1970s and 1980s, and in financial crises and banking crises. Furthermore, the primary role of these international organisations is to provide development financing for specific projects in the countries concerned. For example, crisis management of Asian currencies was undertaken through the tripartite corporation of the IMF, WB, and

Asian Development Bank (ADB). Responsibility for the reform of the banking sector was assigned to the IMF, whereas the WB was put in charge of financial sector reform. However, the World Bank's role in these reforms begins with assisting the governments concerned in diagnosing the strengths and weaknesses of their financial systems analysing how the system compares with others, training bank supervisors and giving advice to the authorities on the reform process. Furthermore, the WB is currently involved in projects related to issues such as financial structure, deposit insurance, financial regulation, banking crises, bank insolvency, and banking privatisation and internationalisation (Biagio and Larry, 1998).

3.4.1 Banking Reform Theory

Many countries in the world liberalized their financial sectors in the late 1980s or 1990s to encourage greater financial efficiency and to reduce direct government control. The principle aim of the liberalization process is to increase bank lending to the private sector, which is a major part of any country as well as the engine of economic growth. On the other hand the economic reforms have reduced the risk of bank distress caused by governments directing banks to lend to unviable and uncreditworthy borrowers.

The reform policy included: removing interest rate controls; removal of quantitative controls on banks in lending to specific sectors; privatization of state-owned banks; the lifting of barriers to competition; introduction of market based securities, and allowing the establishment of private banks and other financial institutions with the potential involvement of foreign investors. At the same time, to promote sounder banking systems and to help protect bank deposits, reforms were introduced to strengthen the prudential

regulation and supervision of banks by improving bank laws and expanding supervisory capacities (Brown bridge, 2002; Brown bridge and Harvey, 1998; Daniel and Emilia, 2001).

The main purposes of the reform policies have generally been to raise both the level of investment as well as the efficient allocation of resources, besides enhancing the provisions of financial services in all sectors of the economy (Daniel and Emilia, 2001). During the 1980s and 1990s bank systems in both the developed and the developing countries alike underwent fundamental changes. Many banks were devastated by the burden of non- performing loans, brought on by different causes.

However, bank restructuring has become a centrepiece of financial reform policies. Accordingly, bank restructuring has been defined as the package of macroeconomic, microeconomic, institutional, and regulatory measures taken to restore problematic banking systems from financial solvency. Sheng (1996) gathered evidence in a study conducted in different developed and developing countries that the banking problems in the 1980s were essentially an outcome of bad policies, poor management and a weak institutional framework. However, Honohan (1997) emphasised that the causes of banking failures can often be ascribed to poor lending decisions, recoverability of delinquent loans, and concentration of lending in certain sectors under government directives or to particular borrowers. Furthermore, banking crises attributed to poor management may also be imputed to poor supervision and regulation (Honohan, 1997).

Nevertheless, major steps have been undertaken in regard to financial sector reform, including the building of new legal and regulatory frameworks, the strengthening of banking and financial intermediation, the removal of interests rates and exchange rate control, the liberalisation of market entry into the financial sector, the commercialisation and privatisation of state-owned financial institutions, and the opening of the financial markets to wider domestic and foreign competition (Sheng, 1996).

To this end, it could be argued that financial liberalisation has not created the results expected by theory. For instance, in many countries liberalisation resulted in financial crises a few years after it had been implemented. Furthermore, it is commonly observed that credit supply tends to increase after liberalisation. The most important observation is that some interventionist countries have achieved remarkable levels of financial deepening without significant liberalisation (e.g. Korea and Taiwan).

It is logical to ask whether the banking reforms have made significant differences. Whilst some countries have been successful in eliminating underlying distortions by restructuring their financial sectors following reform, in others the financial sectors have remained underdeveloped and the rates of financial intermediation in particular banking institutions continue to be quite low. This may be attributed to differences in the type and scale of banking problems between countries. Furthermore, the process of choosing the right time and the right polices is the first step towards the success of banking reforms. The success of banking reforms is dependent on several factors, including the correct identification of banking problems, the selection of the appropriate and applicable policies, and finally the right sequencing as well as the right timing.

3.4.2 Banking Regulation and Supervision: Objectives, Rules, and Perspectives

Any banking system is prone to many problems and weaknesses, These problems are usually due to a multitude of factors, including macroeconomic shocks, microeconomic actions, overcapacity in banking, excessive competition, operational inefficiencies, repressive taxation, structural rigidities, portfolio concentration, speculation, mismanagement and fraud, external shocks, policy mistakes, and inadequate supervision. All these factors contribute to bank insolvency and poor performance (Sheng, 1996). The government controlled structural banking system has advantages for economic development in developing countries. However, many cases have proven that not all developing countries succeed in their efforts to achieve economic development under government guidance and the control of the banking system. The main goal for regulatory and supervisory authorities is to achieve credibility and stability of the banking system. However, to achieve effective regulatory and supervisory operation, some degree of independence, and non-political interference should be provided (Bascom, 1994).

3.4.2.1 Banking Supervision

Banking supervision tends to minimize moral hazard behaviour relating to lending, conflicts of interest, fraud and mismanagement. Moreover, the main objectives of bank supervision are: (i) competition and operational efficiency; (ii) safety and soundness; (iii) monetary policy and allocation efficiency; and (iv) protection of small depositors (Sheng, 1996). Therefore, international cooperation regarding the supervision has become necessary following the globalisation of services.

Bank supervision helps determine whether or not the objectives of bank regulation have been achieved. It usually includes the examination of commercial banks to determine capital adequacy, asset quality, management, internal controls and audit, earnings, and liquidity. However, supervision in most banks broadly adopts the US CAMEL model for assessing bank performance with regard to issues such as capital adequacy, assets quality, management quality, earnings, and liquidity (Bascom, 1994). Further details of this model will be considered in chapter 5.

3.4.2.2 Banking Regulation

As has been mentioned earlier, the banking system constitutes part of the financial structure of the country. It shoulders the responsibility to maintain the confidence of the public in the safety and soundness of banks. Therefore, it is in the public interest to regulate the banking system and supervise its operation in the best interest of the economy.

Banking regulation must provide an environment in which banks can exercise schemes to respond promptly and flexibly to the changing economic environment. A regulatory and supervisory framework will require the introduction of set of standard rules, for instance loan classification, loan concentration norms for asset quality determination, and rules for preventing banks from accruing interest on non-performing loans. This framework should also involve financial reporting and capital adequacy requirement and should raise the enforcement powers of the regulatory and supervisory agencies. Furthermore, this framework should emphasize the triggering of the banks' financial condition, the evaluation of their management and asset quality and the assessment of

their accounting, and internal control and auditing functions (Bascom, 1994). One can draw the conclusion that the banking system must be regulated so that it can carry out its role in the interest of the public as well as the interests of its owners.

3.4.2.3 Capital Adequacy

Debt and banking crises have caused a great deterioration in the quality of the international banking system. Therefore, a capital adequacy in banks has become the main concern of the international supervisory authorities. According to Barge (1985), capital is defined as the amount of losses that a bank can sustain over and above the level of its annual profit before depositors' funds are placed at risk. It is a reserve to absorb unexpected losses, and is necessary to support depositor confidence. The capital adequacy measures for banking institutions should be treated as a foundation stone of prudential regulation and supervision which guarantees that the banking institutions do not take imprudent risks and that they manage their assets and sources of funds in a prudent and honest manner in both the domestic and the international context. The main aims of capital adequacy in national banks are justified in terms of safety and soundness (Norton, 1995).

Since the Basle Committee on Banking Supervision agreed a uniform standard of risk-weight capital adequacy of 8 per cent, most developing countries are now moving towards the required standards (Sheng, 1996). Under the Basle capital accord, capital adequacy measures are justified for the safety and soundness of the international banking system and competitive equality and transparency within internal banking (Norton, 1995). Furthermore, in June 1999, the Committee released a proposal to replace

the 1988 capital accord with a more risk-sensitive framework. The framework intends to improve safety and soundness in the financial system by focusing on aspects such as bank ownership, internal control systems, the management and supervision review process and market discipline (Basle Secretariat, 2001).

Moreover, there is strong evidence suggesting that banking regulation and supervision, and in particular capital requirements would help establish a sound foundation for the explanation of customer loans.

3.4.2.4 Loan Classification

The bank's assets and loan quality are most important to the safety and soundness of its services because loans are the ordinary bank's single largest asset and represent the greatest potential for loss. In the regulatory and supervisory framework, the loan component should be given special emphasis because the volume of non-performing loans was the main cause of financial crises in the developing countries during the 1980s (Bascom, 1994). To meet the Basle capital adequacy rule, the regulatory and supervisory authorities in each country should set out clearly the criteria, rules and practices for loan classification and loan provision.

Therefore, each individual bank should establish its own loan classification standard, which may appropriately and adequately reflect its own specific circumstances. So standards of loan classification should be based on the borrower's creditworthiness, the market value of collateral and the financial performance of the customer: in the past, currently and in projections into the future.

Bascom (1994) highlighted that bank supervision may focus on commercial loans. So the supervision of the bank's commercial lending should have at least the following six objectives:

a) *To determine if related lending policy objectives, procedures and internal control are adequate;*
b) *To determine if bank officers operate in compliance with the bank's policies, directives, and guidelines;*
c) *To evaluate the portfolio for asset quality, collectibility and collateral sufficiency;*
d) *To determine the scope and adequacy of audit function;*
e) *To determine compliance with applicable loans and regulation;*
f) *To implement corrective measures when policies, procedures objectives or internal controls are deficient.*

The banking regulatory and supervisory framework should establish loan classification, which may depend on its environment. Therefore, bank regulation in developing countries should lend all banks to classify their asset portfolios as well as requiring a loan classification system based on the following guidelines: substandard loans, doubtful loans, loss loans and special mention loan. Loan provision is based on loan classification. In general, countries with strong loan classification systems have tended to have satisfactory loan provision policies and practices. However, in order to conform to adequate loan provision, financial reform policies should require the tightening of loan provisioning and the linking of such provisioning to loan classification systems as specified by the country's bank regulations (Bascom, 1994).

Bascom (1994) suggested a model of the minimum specific provision based on loan classification as percentage of outstanding balance based on non-performing loans as follows:

Substandard		**25 per cent**
Doubtful	**Loans overdue**	
	180-225 days	**50 per cent**
	226-270 days	**60 per cent**
	271-315 days	**70 per cent**
	316-364 days	**80 per cent**
Loss		**100 per cent**

3.4.2.5 Internal Control Systems: Definition and Components

Generally speaking the internal control systems in banking organisations and their rules and scope are increasingly important following the liberalisation of financial markets. The main question is why internal control systems are needed.

Strong internal control systems, including an internal audit function and an independent external audit, are vitally important in banking organisations for the safety and soundness of operations. They can contribute to an efficient and constructive working relationship between the bank management and the banking supervisors (Basle, 2002). The importance of effective internal control systems has grown in significance in recent years, given the recent spate of bank failures and losses (Dalvinder, 1998). The importance of internal control systems arises from the fact that they have the following advantages:

(i) An effective internal control system is a critical component of bank management and a strong foundation for the safe and sound operations of banking organisations;

(ii) A strong internal control system can help to ensure that the goals and objectives of the banking organisations will be met and maintained by reliable financial and managerial reporting.

(iii) Control system can ensure that the bank will comply with laws and regulations, policies and plans as well as the internal rules and procedures, and will decrease the risk of uncertain losses that may be likely to damage the bank's reputation (Basle, 1998).

Internal controls now constitute a central feature of the operational and management structures of banks. Kinselia (1995) defined internal controls as follows:

> *"Systems established in order to provide reasonable assurance of effective and efficient operations, reliable financial information and reporting and compliance with laws and regulations".*

The Basle committee defined internal control systems as:

> *"A process put in place by the board of directors, senior management and all levels of personnel to provide reasonable assurance that an organisation's objectives well be achieved. It includes all measures and practices that are used to mitigate exposures to risk that could potentially prevent an organisation from achieving its objectives"* (Basle, 1998).

The lack of effective and strong internal control systems will lead to significant losses to banks. These losses can be avoided by improved internal control systems, which is the main responsibility of the board of directors and senior management in implementing a strong control culture.

The Basle committee has highlighted five factors, which have led to bank failures as follows:

- Lack of adequate management oversight and accountability and failures to develop a strong control culture within the bank;
- Inadequate recognition and assessment of the risk associated with certain banking activities;

- The absence or failure of key control structures and activities such as segregation of duties, approval, verifications reconciliation and review of operating performance;
- Inadequate communication of information between levels of management within the bank particularly in the upward communication of problems; and
- Inadequate or ineffective audit programmes and monitoring activities.

The main objectives of the internal control process can be categorized as follows:

1. Safeguarding of assets (***securities objectives***)
2. Efficiency and effectiveness of operations (***operational objectives***)
3. Reliability and completeness of accounting/ financial management information (***information objectives***)
4. Compliance with organisational policies and procedures as well as applicable laws and regulations (***Compliance objectives***) (Dalvinder, 1998).

The objectives of internal control systems have changed from prevention, reduction of potential errors, fraud, misappropriation and corruption to become more comprehensive to include risk management. Furthermore, internal control systems now maintain that a sound internal control process could efficiently test the bank's ability to meet its established goals and to maintain its financial viability. The Basle committee considers these components of the internal control process as indispensable to achieving the bank's performance, information and compliance objectives (Basle, 1998).

Under the new extensive process internal control consists of five components:

a. Management oversight and the control culture;

b. Risk recognition and assessment;

c. Control activities and segregation of duties;

d. Information and communication; and

e. Monitoring activities and correcting deficiencies (Basle, 1998).

To further explain the components of internal control systems, one may consider the following:

1) An Appropriate Organisational Structures

A) ***Board of Directors***

In order to render the job of the board of directors more effective, banks need to establish sound and adequate internal control systems. However, the board of directors should undertake the following responsibilities: (i) approving and reviewing the overall business strategies and operational policies of the bank as well as the organisational structure particularly for adequate and effective internal control systems to be established and maintained; (ii) ensuring that the top management should identify, measure, monitor and control the major risks run by the bank; and (iii) ensuring that top management monitors the effectiveness of the internal controls system.

The board of directors should follow up with top management the effectiveness of the internal controls and their ongoing evaluation by management and internal and external auditors (Basle, 1998). To achieve this duty, many banks in different countries establish an independent audit committee.

The audit committee plays a very important role in the corporate governance of banks. Its responsibility typically includes reviewing financial statements and important accounting policies, supervising the audit activities of the internal and external auditors and monitoring bank internal controls including those relating to compliance with laws and regulations (GAO, 1991).

B) ***Top Management***

Top management is responsible for carrying out the directives of the board of directors. Moreover, top management is responsible for implementing strategies and policies approved by the board of directors, developing processes such as identifying, monitoring and controlling risks incurred by the bank, opting for the appropriate internal control policies and monitoring the adequacy and effectiveness of internal control systems.

However, to ensure management's proper functioning, top management needs to take steps so that tasks should be delegated to qualified and experienced staff in order to diffuse any possible government influence or intervention (Basle, 1998).

C) ***Internal Audit***

Adequate internal controls within banking organisations must be supplemented by an effective internal audit function that independently evaluates the control systems within the organisation (Basle, 2001). The internal audit function is an important part of the ongoing monitoring of the system of internal controls because it provides an independent assessment of the adequacy of and compliance with the established policies and procedures. Therefore, the internal audit function should report directly to the board of directors or its audit committee, and top management (Basle, 1998).

The Basle committee defines the internal audit as follows:

> "*An independent, objective assurance and consulting activity designed to add value and improve an organisation's operation. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes* (Basle, 2001).

On the other hand, the American Institute of Internal Auditors defines internal audit as:

> "*An independent appraisal function established within an organisation to examine and evaluate its activities as a service to the organisation*" (Jack and Fredrick, 1985).

The objective of internal auditing is to assist members of the organisation in the effective discharge of their obligations. To this end, interim auditing furnishes them with analysis, appraisal, recommendation, counsel and information concerning the activities reviewed (ibid, 1985). Therefore, the scope of internal auditing is extended to every activity and every unit of the bank. The internal audit should include the examination and evaluation of the appropriateness and effectiveness of the internal control systems and the manner in which assigned responsibilities are fulfilled (Basle, 2001).

2) Adequate Credit Policies and Strengthening the Control Culture

A) Adequate Credit Policies

Appropriate internal control systems create a sound credit culture necessary to the banking system in the new economic environment, such as in lending policy. Lack of good internal controls and weak management lead to excessive risk taking, mismanagement, waste, fraud and abuse. Thus, sound bank management and lending standards need to include lending policy, prudent credit approval procedures, risk limitation, and administration procedures (Basle, 1998).

A sound credit culture is one of the key elements necessary to the development of reform in financial system. To establish and maintain a sound credit culture, any banking organisation needs to establish the appropriate internal controls systems, which create the foundations of good institutional governance.

B) ***Control Culture***

The main element of the effective system of internal controls is to enhance a strong control culture. The board of directors and top management can achieve this by:

(i) promoting high ethical values and standards integrity ; (ii) establishing a culture within the organisation that emphasises and demonstrates to all levels of personnel the importance of internal control system (Basle, 1998).

The Basle committee recognises that a strong culture of control reduces the likelihood of errors going undetected, which will ultimately lead to future losses or collapse (Dalvinder, 1998).

3) Risk Management

An effective internal control system requires banks to determine their own adequate risk management standards (Basle, 1998). Risk assessment incorporates a process of analysing both internal and external factors such as credit risk, country risk, market risk, interest rate risk, and operational risk. All these risks need to be assessed continually so that the bank can meet its objectives and prevent a situation arising which could be detrimental to its financial well being (ibid, 1998).

3.4.2.6 Government Intervention in the Banking System

In developing countries one of the major causes of financial and banking crises may be associated with government control over the banking system or frequent government intervention in the activities of the banking sector. Therefore, one of the main objectives of the banking regulation and supervision is to provide protection against systematic instability in the banking system.

As explained earlier, to establish a safe, sound and effective banking system, one needs to find an approach that reduces the chance of any intervention by government and banking regulatory and supervisory authorities intervention, which strips the banks of their commercial and effective business orientation.

In this approach, banks have greater incentive to act independently in their market operations, which will improve autonomy in their lending activities and avoid malfunctioning policies, including non-performing loans. From the foregoing, it could be concluded that bank regulators and supervisors should establish a comprehensive set of prudential standards that would possibly lead to financial stability.

3.5 Lessons from Other Experiences

This part of the study reviews the banking reform policy in two developing economies: Malaysia and Saudi Arabia. The main reason behind this choice is that both countries have achieved success in adopting appropriate economic and financial policies which have significantly helped to improve the quality of life and to achieve the modernization of different sectors, and particularly the banking sector. Moreover, both countries are

economically similar to Libya, as they rely on oil revenues to implement their development plans.

3.5.1 The Malaysian Experience

Malaysia is a clear success story among developing countries. It has adopted adjustment programmes since the early 1980s, and has moved to a market based system to manage its economy by improving the infrastructure of the financial markets through adopting the CAMEL approach.

The motivation behind the reforms in Malaysia was primarily the world economic depression of 1981-83, which badly hit its export trading activities. However, the sharp decline in the country's revenues forced the state to re-evaluate its development strategy, including banking reforms (Anwar, 1998). The Malaysian economy has enjoyed a rapid economic growth with a rising per capita income and price stability. Real GDP growth accelerated from an average of 5.2 per cent annually in 1961-70 to about 8 per cent in the 1970s (Aznam et al, 1994). Malaysia has a political and social system, which is very stable. Moreover, its per capita income in 1993 of $3140 increased to $3601 in 2002. However, between 1985 and 1993, total government spending expressed as a percentage of the GDP dropped from 32.9% to 25.4% and then increased to 103.8% in 2002, as shown in table (3.1)

Table3.1: Key Macroeconomic Indicators 1997-2002 in Malaysia

Economic Indicators	1970-1980	1980-1993	1999-2002
* Average annual rate of inflation in percent	7.3	2.2	1.4
* Average annual growth rate of GDP in percent	7.9	6.2	4.7
* Income per capita $		1993	2002
		3140	3601
* GNP			
* As per cent of GDP	1985	1993	2002
* Total expenditures	32.9	25.4	103.8
* Fiscal deficit	5.7	-0.2	-20.3
* Nominal interest rates of banks annual average %	1985	1993	2002
* Deposit rates	6.2	7.2	4.0
* Lending rates	7.8	8.1	6.39

Source: World Bank, World Development Report 1995, Asian Development Bank in: Jose M., Rohinton (1998) "Financial Reform in Developing Countries" and Bank of Negara: Annual Report 2003.

3.5.1.1 The Financial System in Malaysia

The Malaysian financial system can be divided into monetary and non-monetary institutions. The monetary institutions are the central bank (Bank Negara Malaysia, BNM) and commercial banks including the Islamic Banks. On the other hand the non-monetary institutions consist of two groups. The first group, which is supervised by the BNM, includes finance companies, merchant banks, discount houses, representative offices of foreign banks, and offshore banks; whereas the second group includes various government departments and agencies such as finance development institutions savings institutions provident and pension funds, insurance companies, and other financial intermediaries.

By 1997 the Malaysian banking system consisted of 35 commercial banks, 22 domestically owned and 13 foreign owned banks, one Islamic bank, 39 finance companies, 12 merchant banks, and 8 money and foreign exchange brokers (Soo, 1999). In 2002 the financial institutions in Malaysia comprised of 45 organisations: 24

commercial banks, 22 finance companies, and 10 merchant banks (Bank Nergara, 2003).

Table 3.2: Assets of the Banking System in Malaysia in 1997 and 2003

Banking institutions	Assets in 1997 ($ bn)	%	Assets in 2003 ($ bn)	%
Bank Negara Malaysia	**28.6**	**13.4**	**52.8**	**19.2**
Commercial banks	**128.0**	**60.0**	**165.6**	**60.2**
Financial companies	**40.2**	**18.7**	**37.6**	**13.6**
Merchant banks	**11.6**	**5.4**	**11.6**	**4.2**
Discount houses	**5.6**	**2.5**	**7.9**	**2.8**
Total	**214.0**	**100.0**	**275.5**	**100.0**

***Source**: Bank Negara Malaysia: in Soo, N. (1999), and Bank Negara, Annual Report 2004.*

As table 3.2 shows, commercial banks accounted for 60 per cent of the total assets of the banking system (about 43.9 per cent of the total assets of the financial sector) at the end of 1997, compared with 60.2 per cent at the end of 2002. Furthermore, in terms of total assets and number of institutions and branch offices, they represent the core of the financial sector in Malaysia. The total resources of the financial system, expressed in current prices grew phenomenally from $11.6 billion in 1970 to $309.1 billion in 1990, achieving an average annual growth rate of 17.8 per cent (Aznam et al., 1994).

3.5.1.2 Recent Developments in the Malaysian Banking Sector

The Malaysian banking sector has played a leading role in the Malaysian economy. In addition, it plays a vital role in indirect financing. Banking institutions have shown remarkable growth in total assets. In terms of growth, the total assets of the banking system have grown by nearly 4 times from $66.54 billion in 1990 to $174.14 billion in 1997, and registered $214.94 billion at the end of 2003.

As tables 3.3 and 3.4 show, the performance and growth in loans and advances in the Malaysian banking institutions rose 2.5 fold from $42.20 bn to $103.21 bn over the period 1990-1997. However, the total loans and advances rose to reach $124.65 bn in 2003. Consequently, the ratio of non-performing loans to total loans has increased from 3.9 in 1996 to 5.7 in 1997, and reached 6.8 by the end of 2003 (Soo, 1999; and Bank Negara, 2004).

Table 3.3: Performance of the Malaysian Banking System, 1990-2002

Item	1990	1991	1992	1993	1994	1995	1996	1997	2002
				Amount ($ billion)					
Net Interest Income	1.15	1.76	2.14	2.48	3.43	4.05	5.25	4.26	4.65
Pre-tax Profit	0.703	0.807	0.995	1.36	2.03	2.67	3.44	2.03	2.44
				Per cent					
Return on Assets	1.4	1.3	1.3	1.5	1.7	1.9	2.0	1.3	1.3
Return on Equity	21.5	17.6	16.8	20.2	24.2	26.2	27.5	19.0	16.3
Non-performing Loans/ Total Loans	20.3	15.6	14.9	12.6	8.1	5.5	3.9	5.7	6.8
General provision/ Total Loans	0.7	0.9	1.1	1.3	1.6	1.6	1.9	2.0	2.0

Source: *Bank Negara Malaysia, in Soo, N. (1999) and Bank Negara, Annual Report 2004*

Table 3.4: Assets and Loans of the Malaysian Banking System ($ billion)

	Total Assets				Total Loans and Advances			
Financial Institution	1985	1990	1997	2003	1985	1990	1997	2003
Commercial Banks	30.59	47.85	123.61	165.68	20.16	29.89	70.96	93.63
Financial Companies	7.35	14.60	39.15	37.66	5.01	10.00	26.34	28.12
Merchant Banks	2.59	4.09	11.38	11.60	1.51	2.31	5.91	2.90
Total	40.53	66.54	174.14	214.94	26.68	42.20	103.21	124.65

Source: *Bank Negara Malaysia, in Soo, N. (1999), and Bank Negara: Annual Report 2004*

3.5.1.3 The Reform Policy in Malaysia

The initial steps of banking reform policy in the 1980s followed by a gradual approach in Malaysia. However, the Bank Negara has been the initiator of the financial

liberalisation and has played a supporting role (Anwar, 1998). As a result of the budget and current account deficit, a new policy was introduced in 1985, as the government announced various measures of economic stabilisation and adjustment, which included significant, cuts in government investment spending. The privatisation policy was announced in 1983 and a master plan of privatisation was issued in 1991.

Yet, a major phase of reform came as early as 1978, allowing commercial banks to determine their number of depositors and borrowers. Therefore, the Bank Negara introduced the Base Lending Rate (BLR) in 1983. Every bank or finance company's lending rates were anchored to its declared BLR, which was based on the cost of funds after allowing for the cost of statutory reserves, liquid assets, requirements and overheads. In 1991, the BLR was finally freed from the administrative and ceiling rate for priority sector lending control of the Bank Negara. Furthermore, the priority of the Bank Negara was to improve financial market infrastructure and develop more markets as well as government securities (Aznam et al., 1998). Malaysia's reform policies also included the deregulation of interest rates.

One step towards the removal of controls on exchange rates commenced in 1972, when the Malaysian government severed its historical links with Sterling, introducing the US dollar as the intervention currency. Then, a year later the Ringgit (the Malaysian currency) was allowed to float upward against a basket of representative major currencies as well as the major trading partners of Malaysia (Aznam et al., 1994). Nonetheless the credit system in Malaysia has remained segmented and pro-cyclical.

Therefore, banks in Malaysia are still mandated to channel certain portions of their credit to specific economic sectors (Anwar, 1998).

In 1975, the Malaysian government issued guidelines requiring commercial banks and finance companies to extend a minimum of 50 per cent of the net credit during that year to priority sectors, which declined to 20 per cent in the early of 1980s (Aznam, 1994). For credit regulation the Bank Negara issued lending guidelines that required commercial banks to channel certain percentages of their credit to certain classes of customers and specific economic sectors (Anwar, 1998).

Most resources of commercial banks have been used to finance loans and advances to different sectors of the economy. The commercial banks' share of loans and advances to total assets rose from an average of 59 per cent in 1975-77 to 60-66 per cent in 1978-90, and to 66.2 per cent at the end of 2003. As is often the case, the decline in the quality of bank loans resulted from insufficient diversification. In Malaysia's case the over concentration of loans to one sector or a small group of major customers such as the property sector, left many banks and finance companies with large percentage of non-performing loans. Therefore, the rate of provision for bad and doubtful debts to the total loans and advances rose from an average ratio of 2.5 per cent in 1984 to 6 and 10 per cent at the end of 1990 and 2003 respectively, as shown in table 3.5. As Sheng (1987) pointed out, mismanagement, fraud, overstretched managerial resources, and poor internal procedures and controls had led to lax control over costs and a rapid rise in non-performing loans. This situation affected most Malaysian institutions (with similar results to those in the Libyan banking system shown in chapters 4 and 6, for instance,

that the ratio of non-performing loans in one bank exceeded 45 percent of total loans). In the banking system there was a big overhang of non-performing loans. For the commercial banking sector in Malaysia, the share of substandard loans in non-performing loans rose in 1987, as table 3.5 indicates. However, the reduction of the classification period has partly contributed to the recent rise in NPL.

Table 3.5: Non-Performing Loans of Commercial banks as Percentage

Year	Interest in suspense/ Total loans and advances	Provision for bad debts/ Total loans and advances	Non-performing loans/ Total loans and advances
1981	0.6	1.7	-
1984	1.2	2.5	10.3
1986	4.4	6.2	26.8
1987	6.0	7.3	32.6
1988	7.7	7.7	24.6
1989	7.9	7.3	20.8
1990	7.5	6.2	-
2003	3.8	10.0	25.0

Source: *Aznam et al., 1998, and Bank Negara, 2004*

The role of the Bank Negara was the initial approach to directing a change in management. The other resolution was that the owners and management of the bank were responsible for strengthening the capital base and solving the problem of loans in their banks. On the other hand, if they were not able to resolve these problems the Bank Negara would advise them to undergo a merger, consolidation or take- over by new investors, or provide them with fresh capital injections (Anwar, 1998). Since the introduction of these guidelines, the priority sectors were reduced as well as the proportion of loans covered by the guidelines (Aznam et al., 1998).

The reform policy in regard to the financial system usually affects savings, and therefore by definition will affect economic growth and development as well. Yet, a major role of any financial system is to mobilize savings for investment. Hence before the

liberalisation of interest rates, the concentration in the commercial banking industry was very high, with the 10 largest banks accounting for 80 per cent of the industry's total deposits and loans and almost 80 percent of all assets.

To improve the performance of the Malaysian banking system, the Bank Negara strengthened the regulatory and supervisory framework of the banking sector. The approach to liberalisation in the Malaysian financial system has been one of cautious and gradual structural deregulation and prudential regulation (Aznam et al., 1994).

The Bank Negara was established in 1958 as a Central Bank of Malaysia. Its main objective was to help promote monetary stability and a sound of financial structure. Its powers were extended and strengthened by the Banking and Financial Institutions Act of 1989. Under this act, the Bank Negara would monitor the financial institutions by requiring them to submit regular financial returns so as to ensure that they were operating within prudential limits and observing legal requirements.

Guidelines have been issued to regulate the financial institutions. Subsequently the banking system has become under tight control through examinations of financial institutions, including:

1) appraisal of asset quality; (2) verification of types and sizes of various liabilities; (3) appraisal of management; (4) asset and liabilities management; (5) compliance with the legal and regulatory requirements as well as with the broad national policies; and (6) evaluation of records systems and internal controls (Aznam, et al., 1998).

Prior to the financial crisis in 1997, Malaysia was experiencing a period of growth and economic stability; the GDP had been growing at a rate of over 8 per cent since 1990. Following the sharp depreciation of the Thai Bank in 1997, the Malaysian currency began to experience waves of speculative pressure, which had a negative effect on earnings and the overall performance of the banking sector (Wa, 2000). The main reasons for this problem were the downturn of the economy and the collapse of both the property and stock markets. However, more fundamental reasons may be related to state-directed loan policies, lack of competition, and lack of prudential regulations (Soo, 1999)

In this situation, the Malaysian government represented by the Bank Negara Malaysia, moved to improve the soundness of the banking institutions by adopting measures which included: i) improvement in credit allocation; (ii) strengthening of prudential regulations; (iii) resolution of non-performing loans (NPL), including reclassification of loans as non-performing loans. Increasing the rate of general provisioning, and requiring greater financial disclosure (Wa, 2000); and (v) recapitalisation and consolidation of the banking sector by the establishment of agencies to treat NPL in the banking sector in Malaysia. For instance, the role of the national asset management company is to address the rise in NPL (Soo, 1999; and Wa, 2000).

3.5.1.4 Lessons from the Malaysian Experience

As an emerging market, Malaysia is a clear success story. In the past three decades Malaysia has implemented many development plans to improve the quality of life and to modernise its agrarian economy towards being a service-oriented industry. Therefore,

the Malaysian economy appeared healthier than other Southeast Asian countries during the Asian crises of 1997. The main reason behind Malaysia's success may be attributed to: a) the implementation of a gradual and consistent approach in financial sector deregulation, accompanied by a more proper sequencing as prescribed by the textbook. b) The adoption of a complete interest rate liberalisation policy implemented over a short period of time.

3.5.2 The Saudi Arabian Experience

Since the early 1970s, oil revenues have transformed the Kingdom of Saudi Arabia (KSA) into a modern industrialised economy (Wilson, 1998). In the early part of the twentieth century the financial situation in the KSA, consisted of a few foreign based trading and money changers that provided most of the finance services including deposit taking and lending funds. In 1939, however, in the aftermath of the oil discovery, government revenues and expenditures rose rapidly and foreign banks started entering the market. In order to, achieve a stable monetary mechanism and a stable currency, the government established the Saudi Arabian Monetary Agency (SAMA) in 1952. Meanwhile, the government continued to use the services of the money changer Al-Kaki and Bin Mahfouz Co. to act as its agent. However, by 1953, the SAMA, permitted this money changer to start the first bank in the Kingdom under the name of the National Commercial Bank, which was followed by Riyad Bank and Bank Al-watany in 1957 and 1958 respectively (BIS, 1999).

However, the SAMA suffered its first problems in 1960, when the Bank of Riyad and Bank Al-Watany confronted serious problems a rising from mismanagement and the

provisions of improper loans. A new Banking Control law was issued in 1966, which gave SAMA unreserved supervisory powers. Under the new Law, banks were required to meet capital adequacy, liquidity and lending ratios and reserve requirements.

3.5.2.1 The Structure of the Banking System in KSA

The Saudi banking system consists of eleven commercial banks all of which are wholly or partially owned by Saudi nationals. Other banking institutions include five state-owned banks. These banks were mainly involved in development activities, providing soft facilities to projects related to infrastructure (Wilson, 1998). By 1979, there were twelve banks in operation, only three of which were non-Saudi, which merged into the United Saudi Commercial Bank in 1982 with 300 branches throughout the Kingdom.

At present, the number of commercial banks is eleven following the Saudisation of foreign banks and the commencement of the International Gulf Bank. By 2001, the number of operating bank branches increased to 1,186 as shown on table 3.6 (SAMA, 2001).

Table 3.6: Bank Branches Operating in the Saudi Arabia 3rd Qrt 2001

Commercial banks	3rd Qrt 2001
National Commercial Bank	245
Riyadh Bank	193
Al-Bank Al-Saudi Al-Franci	56
The Arab National Bank	114
Saudi British Bank	71
Bank Al- Jazira	13
Saudi Hollandi Bank	37
Saudi Investment Bank	13
Al-Rajhi Banking & investment Corporation	380
Saudi American Bank1	63
United Saudi Bank1	-
Gulf International Bank2	-
Total	1186

***Source**: Saudi Arabian Monetary Agency (2001)*

3.5.2.2 Banking Growth, Consolidation and Restructuring

1) The Banking Boom in the 1970s

The 1970s witnessed the rapid expansion of the banking system. There was enormous growth in Saudi commercial banks during the period 1970-1979 as the total assets increased 3.5 fold from SR2.7 billion ($818 million) to SR9.3 billion ($2.8 billion) between 1970 and 1979, and bank deposits increased over 40 fold from SR1.6 billion (about $485 Million) to SR68 billion (about $19.4 bn) (Al-Suhaimi, 1999). Consequently the foreign assets of the commercial banks grew rapidly from 11 per cent of the total assets in 1977 to 25 per cent by the end of 1979 ((BIS, 1999).

In contrast to this growth, the main problems facing banks still remained. These problems included: small business having limited access to credit; cheque facilities were limited to cash withdrawals; foreign currency transfers were available only through money changers; consumer loans and facilities for small savers were lacking of banking methods were antiquated; and computer technology was non-existent (BIS, 1999 and Al-Suhaimi, 1999).

2) The Trials of Saudi Banks in the 1980s

The decade of the 1980s was a tumultuous and testing period for the banking system in the Kingdom. During 1980 and 1981, the growth in commercial credit averaged 26 per-cent, falling to 10 per cent from 1982 to 1989. The bank deposit base grew rapidly from SR 68 billion ($20.6 bn) in 1980 to SR 146 billion ($38.9bn) by the end of 1989. Nonetheless, oil prices tumbled in 1981 and continued to decline for the next five years, putting significant pressure on the quality of bank assets. On the other hand, after

reaching SR 333 billion ($100.9bn) in 1981 government revenues dropped to just SR 74 billion ($ 20.2bn) in 1987. Credits to the private sector that had increased over five fold during the period 1976-81 grew by 29 per cent over the next five years. Moreover non-performing loans were in excess of 20% in 1986, whereby bank profits had suffered significantly, and loan loss provisions and loan write-offs became more frequent. (Basle, 1999; and Al-Suhaimi, 1999).

To resolve these problems, new measures to strengthen the banking system were developed. Firstly, in 1982 the three remaining branches of foreign banks were merged into the United Saudi Commercial Bank. Secondly, the government passed the law for Money Changing Business, which required SAMA to license and regulate the money-changing organisations and also prohibited them from deposit taking and lending. Thirdly, the role of the banking sector was improved through measures such as the introduction of the Banking Security Deposit Account and more effective liquidity management. Finally, SAMA put huge pressure on Saudi banks to embark on a substantive training programme for the Saudi people, and to invest money in developing computer and information technology (BIS, 1999).

3) The Growth of the Banks in the 1990s

By the 1990s the Saudi banking system had largely recovered from the difficulties of the 1980s, by expanding their branch network, introducing more efficient managerial methods and new technologies, raising their capital, improving their profitability and strengthening their provision for doubtful accounts, as shown in table 3.7 (ibid, 1999).

Table 3.7: The Saudi Banking System in 1980-2002

	1980	1990	1998	2002
Assets (in US$ billion)	21	69	109	135.5
Numbers of banks	10	12	11	11
Branches	247	1,011	1,236	1186
Return on assets (%)	1.9	1.4	1.7	-
Simple capital ratio	6.1	7.2	10.4	19*

Source: *Al-Suhaimi, 1999 and SAMA, 2002(* until September 2001)*

As a result of the Gulf crises in 1991, however, the monetary system in KSA was profoundly affected, following customer withdrawals of domestic deposits (11 per cent of total customer deposits). The withdrawn deposits were converted into foreign currency and transferred broad.

Hence, domestic bank loans and advances grew by 90 per cent during the period 1990-95, and all other banking indicators such as return on equity (ROE) and return on assets (ROA) continued to be significantly positive with many banks making record profits during that period (BIS, 1999).

However, despite the difficult situation, the Saudi banks continued to show sound and stable growth and strong profitability during the second half of the 1990s. The trends in Saudi banks' capital continued to increase during 1993-97. The objectives have been achieved and with a risk /asset ratio of over 19 per cent at the end of September 2001 see table 3.7.

Alongside sustained long term growth and development of the banking sector, there has been concerted support by strong and comprehensive banking supervision. SAMA has powers to promulgate rules, regulations and guidelines to banks on matters such as capital adequacy, liquidity, limited lending, credit and market risk.

Furthermore, bank restructuring has become the focus of attention of both SAMA and Saudi banks regarding the area of corporate governance. SAMA has issued guidance to banks on a range of issues such as, the role of a member of the board of directors, the formation of audit committees, and the minimum internal control standards. These initiatives aim at promoting the management control culture and enhancing risk management in the Saudi banking system (BIS, 1999).

Despite the difficulties faced by the Saudi banking system over the past four decades, they have been able to maintain a stable and steady course. Hence, they have been able to avoid a systemic banking crisis. In addition, Saudi Arabia has entered the new millennium with more flexible banking system, becoming responsive to matters related to technology advancement, deregulation and globalisation. Moreover, Saudi banks have been in a position to with stand the challenges of an open, liberal and competitive environment around the world in general and in the Gulf region in particular (Al-Suhaimi, 1999).

In order to assess the Saudi Arabian experience with regard to the banking reforms, it can be seen that the introduction of stronger managerial methods and comprehensive supervision from SAMA have been the main factors in successful in implementation of reform policy and in avoiding failure. The Saudi government has been supporting the liberalisation of the economic and financial sectors in order to render them less reliant on petroleum revenues.

3.6 Summary

The history of banks goes back to the thirteenth century, while the current banking system was created in England in the seventeenth century. The main factors, which have contributed to the development of the banking system, were population growth, industrialisation and the development of infrastructure facilities such as roads and telecommunications.

The English model represents one of the prevailing models in the current banking system. The main feature of the English model is that it relies on the acceptance of deposits from customers. In contrast, the American model is mainly based on a small number of commercial banks with a widespread centrally controlled network of branches. However, the third model is the hybrid banking system prevailing in France and India. This model is based on the idea of a large bank with a national network of branches. Yet modern banks are generally market based, as prevailing in England, the USA, Germany and Japan.

The development of intermediation theory changed the theoretical focus from transaction cost and asymmetric information to focus on the function and efficiency of the organisation. The functions of the financial sector have changed, particularly in the banking system. Banking activities have moved to new services such as trusts, mortgages, banking insurances. This expansion has contributed significantly to the major problems that have affected the banking industry.

However, other events also contributed to the banking crises, which have led to the shaking of public confidence in the banking system. These events include the debt crisis

in the 1970s and the 1980s, the financial crisis in Latin America in 1987 and in the Nordic countries in the 1990s and the Asian crisis in 1997-98. However, other causes of financial crises are either management-related, or policy-related such as credit expansion, weakness of fiscal policies, liberalisation and deregulation, and instability in macro and micro economic policies.

As a result of the expansion of banking services, banking crises have become common phenomenon since the early 1980s. The main factors that have led to the banking crisis include inflation, the slow growth of the GDP, as well as government intervention at macroeconomic level. Yet, at the microeconomic level these factors include poor lending decisions, weak capital adequacy, and lack of supervision and regulation frameworks, lax internal control systems, mismanagement, and fraud.

Consequently, a gloomy picture seems to emerge of the banking industry, making many international organisations such as the World Bank, IMF, BIS, and Basle committee focus on restructuring this situation by adopting standard policies that may lead to reforms in the banking sector. The main principles of the reforms of the banking system aim to reduce the risk of bank distress and to promote a safer, sounder and more efficient banking system. Policy reforms include the removal of controlled interest rate and quantitative control on bank lending, strengthening the framework of banking supervision and regulation and enhancing the internal control systems.

By reviewing banking in Malaysia and Saudi Arabia, which have both experienced significant reforms and restructuring of the banking sector, it has been found that reform

policies were generally extended to cover both macro and micro economic issues. In addition it was found that several measures had been taken towards restructuring the banking sector through the adoption of policies such as: 1) the liberalization of the financial sector including privatisation policies, removal of controls on exchange rates, and deposit rates; 2) strengthening the capital base by raising banks' capital or through mergers; 3) improving bank performance by introducing a comprehensive framework of banking supervision and regulation; and 4) strengthening efficiency and effectiveness of banking by introducing new guidelines concerning the base lending rate, banking security deposits, liquidity management tools, accounting standards, minimum standards of internal controls system guidance, and loan classification.

CHAPTER FOUR

GROWTH, DEVELOPMENT, AND PRE-REFORMS POLICIES IN THE LIBYAN BANKING SECTOR

4.1 INTRODUCTION

Prior to 1970, the Libyan commercial banking sector was fairly weak and consisted of only one national bank (the Bank of Libya) and some branches of foreign banks. Until 1969 only eight branches of foreign banks existed, which were located in the main cities such as Tripoli, Benghazi, Darna, and Sabaha. However, with the advent of the revolution in September 1st 1969, the government made an attempt to control the financial sector through the nationalisation of the banking sector. Consequently, commercial banks fell under direct government control, while a new banking law gave the CBL the upper hand with regard to the new banking system.

However, over the last three decades, the Libyan banking sector has been subject to intensive governmental regulation and control. Moreover, such governmental control of the banking sector has led to a number of problems, such as moral hazard, mismanagement, inefficiency and poor performance. The latest falls in oil prices in the 1990s, coupled with the UN sanctions imposed on Libya in 1992, have tended to highlight the many weaknesses in the Libyan economic structure, paving the way for fundamental reform policies in relation to the commercial banking sector.

This chapter includes five sections. The first section examines the Libyan commercial banking sector, highlighting some historical indicators over the period 1970-2001 by analysing their assets and liabilities. This section particularly focuses on the growth of credit, investment, and deposits. An analysis of assets and liabilities is made in relation to banking effectiveness in mobilizing the savings from several sources. Moreover, it discusses the growth of branches or networks as well as the effects of this growth on the banks' profitability. Finally this section includes a comparative study featuring the banking systems in Libya, Malaysia and Saudi Arabia.

Section two discusses the functions of monetary policy in regulating the banking sector, whereas the third section considers the initial reforms during the period 1970-2001, highlighting the main policies that have been implemented. Section four, on the other hand, discusses the main problems resulting from the government control of the commercial banking system, whereas a conclusion of the preceding sections will be given in section five.

4.2 The Development of the Libyan Commercial Banking Sector

In the last two decades the link between financial intermediation and economic growth has received a great deal of interest among academics, policy makers and economists around the world (Aziakpono, 2003). According to Shirai (2001), strengthening financial systems is one of the central issues facing both developed and the developing countries. This is because sound financial systems serve as an important channel in achieving economic growth by the mobilization and productive use of financial savings and in transforming various risks. Schumpeter (1934) was the first to discuss this relationship at the beginning of the twentieth century. He suggested that the explanation of financial

services would help promote economic growth. However, since then numerous studies have to analysed and measured the relationship between the financial sector and economic growth. Goldsmith (1969), for example, showed a statistical relationship between the financial sector and economic growth, suggesting that the size of the financial sector could be measured by a financial interrelation ratio. This ratio could be defined by the value of financial assets divided as the value of all tangible national assets. So, the higher the financial interrelation ratio, the more important is the financial sector. He also used the ratio of financial intermediary assets to GDP as a measure of financial development.

McKinnon (1973) and Shaw (1973) argued that there is a positive correlation between financial depression (involving policies such as government control on interest rates, or direct controls on credit allocation, trends to retard financial development) and economic growth. Yet, another study by King and Levine (1993) suggested that a positive relationship exists between financial development and the long-run growth of real per capita GDP, and that this effect is particularly pronounced for middle and low-income countries. These authors demonstrated a negative relationship between financial development and economic growth in Latin America during the 1970s and 1980s attributing their results to the financial liberalisation at the time. However, Odedokun (1996), after careful assessment of data from 71 countries spanning the period 1960-1980, concluded that financial intermediation would be more likely promote economic growth.

In the case of Libya, as a result of lack of information about the total assets of the financial sector, the importance of commercial banks is measured here via a slight modification of the financial interrelation ratio of the banking sector's total assets and the total deposits to the GDP.

The growth of the banking system is indicated by net changes in the value of the total assets in the commercial banking to the GDP, as shown in table 4.1. According to this table, the total assets of the banking system as a percentage of GDP rose from 11.2 per cent in 1970 to 79.3 per cent in 2001, with the highest ratio of 88.2 per cent recorded in 1994. However, the overall growth of the total assets of commercial banks is thought to have suffered significant fluctuations during the period 1970-2001. The ratio of the total assets to GDP during that period is shown to have been steadily on the increase. However, the years 1981, 1986 and 1987 were associated with the peak of net changes, corresponding to the period when oil prices dropped sharply, producing significant reductions in GDP as shown in table 4.1 and figure 4.1.

Meanwhile, the period 1996-97 witnessed a large and negative net change in the ratio of the financial assets of commercial banks to GDP; pointing towards unstable financial markets. The average assets-GDP ratio stood at 53.6% over the entire period, with an annual growth rate of 2.2 per cent. In general some specific factors have affected the development of the banking system in Libya, for instance, the nationalisation of the banking system in 1970, rises in oil prices, and the introduction of new banking laws in 1970s and 1990s. These represent some of the factors that have generally contributed, either positively or negatively, to the development of the banking system in Libya.

Table 4.1: Commercial Banks' Assets, Total Deposits and GDP (LD million)

Years	Total Banks Assets	GDP	Total Assets as % of the GDP	Changes in the Ratio Of Total Assets to GDP	Total Deposits	Total Deposits as per cent of the GDP	Changes in the Ratio of Total Deposits to GDP
1970	160.0	1426.0	11.2		129.7	9.1	
1971	270.0	1627.0	16.6	5.4	211.5	13.0	3.9
1972	322.3	1798.0	17.9	1.3	263.6	14.7	1.7
1973	452.3	2246.0	20.1	2.2	367.1	16.3	1.7
1974	704.7	3883.0	18.1	-2.0	602.3	15.5	-0.8
1975	923.0	3780.0	24.4	6.3	615.9	16.3	0.8
1976	1,160.0	4907.0	23.6	-0.8	826.5	16.8	0.5
1977	1,474.7	5763.0	25.6	1.9	1004.4	18.1	1.3
1978	1,524.9	5688.0	26.8	1.2	1043.4	18.3	0.2
1979	2,054.3	7846.0	26.2	-0.6	1423.2	18.1	-0.2
1980	3,436.3	10882.0	31.6	5.4	2416.2	22.2	4.1
1981	3,946.9	9401.0	42.0	10.4	2841.3	30.2	8.0
1982	3,772.7	9373.0	40.3	-1.7	2517.0	26.9	-3.4
1983	3,873.5	8932.0	43.4	3.1	2581.6	28.9	2.0
1984	4,367.1	8364.0	52.2	8.8	2858.8	34.2	5.3
1985	4,694.1	8227.0	57.1	4.8	3247.7	39.5	5.3
1986	4,939.5	7132.0	69.3	12.2	3437.9	48.2	8.7
1987	5,246.8	6253.0	83.9	14.7	3567.4	57.1	8.8
1988	5,282.0	6791.0	77.8	-6.1	3310.0	48.7	-8.3
1989	5,291.2	7537.0	70.2	-7.6	3374.7	44.8	-4.0
1990	6,115.6	8095.0	75.5	5.3	3321.4	41.0	-3.7
1991	6,287.7	8887.0	70.8	-4.8	3565.9	40.1	-0.9
1992	7,232.5	9269.0	78.0	7.3	4173.0	45.0	4.9
1993	7,327.9	9148.0	80.1	2.1	4301.8	47.0	2.0
1994	8,331.3	9444.0	88.2	8.1	5035.9	53.3	6.3
1995	8,931.1	10232.0	87.3	-0.9	5503.1	53.8	0.5
1996	9,673.1	11945.0	81.0	-6.3	5879.0	49.2	-4.6
1997	9,528.5	13284.0	71.7	-9.3	6039.6	45.5	-3.8
1998	9,871.9	12619.0	78.2	6.5	6577.8	52.1	6.7
1999	10,231.1	14314.0	70.7	-7.5	7117.8	49.7	-2.4
2000	10,855.3	14321.4	75.8	5.1	7463.0	52.1	2.4
2001	11,729.7	14795.5	79.3	3.5	7984.0	54.0	1.9
Average			**53.6**	**2.2**		**35.0**	**1.4**

Sources: *Total Assets and Total Deposits: CBL Economic Bulletin (different issues); GDP International Financial Statistics Yearbook (different issue).*

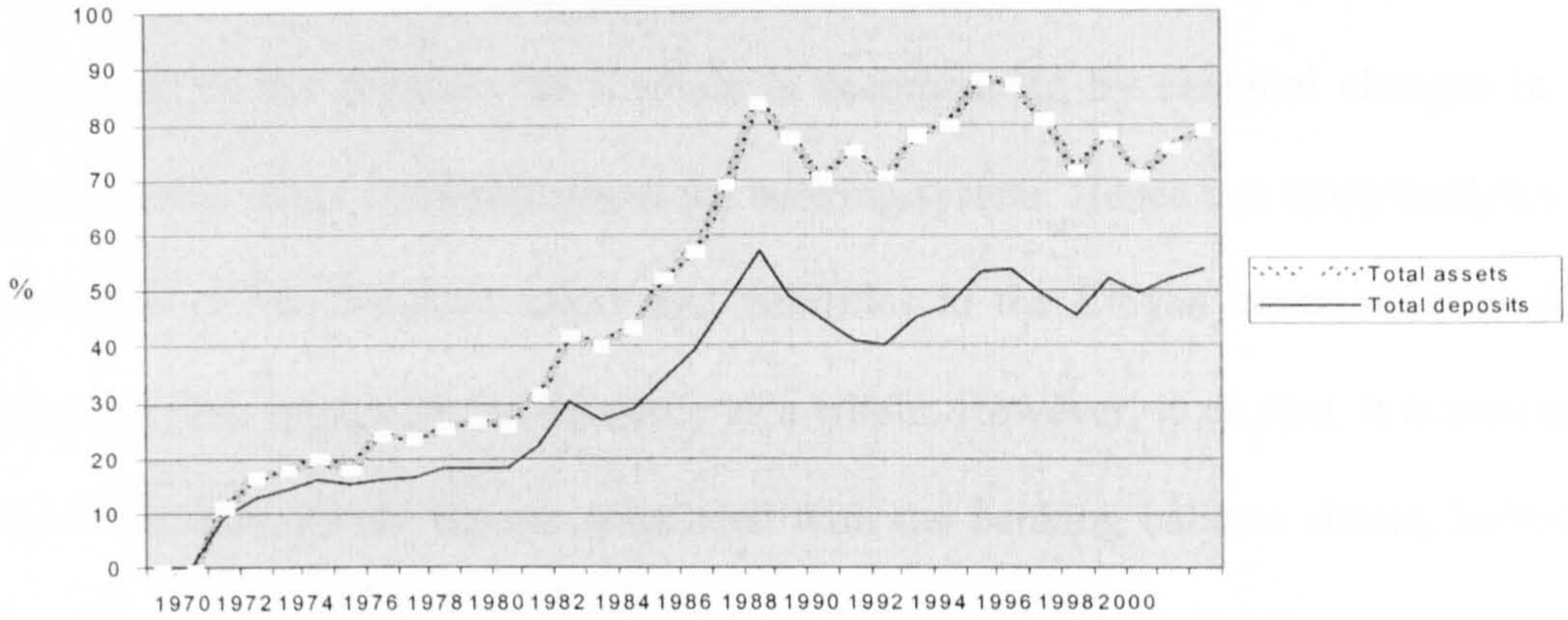
The fluctuations in the ratio of the total assets in the commercial banking system shown in table 4.1 may be imputed to phenomena such as the rise in the price of crude petroleum, which increased total government revenues, following by increasing government expenditure. It also led to huge increases in government deposits, and government control over the banking sector affected the commercial banks by prompting

them to increase their credit and/or purchasing of treasury bills and securities (government tools). Another phenomenon that might be associated with the ratios shown in table 4.1 is the impact of the inflation rate on the banking system in the 1980s and 1990s, associated with the rise of incomes and leading to the rise of nominal deposits.

Table 4.1 shows that by the year 2001 the percentage of total deposits to GDP has risen to 54 per cent, reaching a peak of 57.1 per cent in 1987 as result of the growth in government deposits as shown in figure 4.1. The annual average change in the total bank deposits as a percentage of GDP during the last three decades has been 1.4 per cent, whereas the ratio of the total assets and total deposits to the GDP over the entire period would reflect the vital role that the banking system has played in the process of economic development, as shown in figure 4.1.

It is has been noted that certain specific factors have aided the development of the banking sector, while others have tended to impede that development. As table 4.1 and figure 4.1 show, specific events have had a short-run effect on the development of the Libyan commercial banking sector.

Figure 4.1: The Total Assets and the Total Deposits as a Percentage of the GDP



For example, rises in crude oil prices as well as amendments of the banking laws have, to some extent, affected the development of the commercial banking sector in Libya. Meanwhile this development has been delayed by other factors. For instance, the abolition of the private sector affected banking growth by constraining loans portfolios in pre-selected public sectors leading to the deterioration of banking assets in the long term by increasing non-performing loans (which for example, were LD1.5 billion in 1999).

To sum up, the fluctuation of total assets and total deposits in Libyan commercial banks as percentage of GDP could be associated with fluctuation in GDP which may be attributed to other factors affecting growth in the Libyan economy, as already stated earlier in this chapter.

4.2.1 Assets and Liability Structure of the Commercial Banking System

From a historical point of view, banking activities in most Third World countries have been designed in order to support and contribute towards development plans. Thus, development in the economy as a whole is accompanied by essential changes in the structure of the assets and liabilities of the banking system. Hence this study analyses the composition of the financial assets and liabilities in the Libyan commercial banking system and their impact on the economy as a whole. However, to do that, it is necessary to focus on some of the figures associated with the banking balance sheets, including both primary and secondary reserves, loan portfolios, and deposit liabilities.

4.2.1.1 Structure of Assets

The portfolio of the assets of commercial banks in Libya can be classified into four groups, as shown in table 4.2.

1) Liquid assets, including:

- Cash in vault
- Demand deposits in the Central Bank of Libya and other banks
- Time deposits in the Central Bank of Libya and other banks
- Foreign currency

2) The Libyan Treasury Bills and Securities

3) Credit banking including:

- Loans and overdrafts
- Bills discounted and negotiated
- Other loans

4) Other assets

- Fixed assets

- Balances with foreign banks
- Others

Table 4.2 shows the development of the structure of assets and liabilities in commercial banks in Libya over the period 1970-2001. It becomes evident this over that period, the value of the total assets increased over 70-fold from LD160 million in 1970 to LD11.3 billion in 2001, mainly owing to the massive increases in oil revenues, as figure 4.2 suggests.

Table 4.2: Assets and Liabilities Structure of the Commercial Banks in Libya (1970- 2001)

(in percentages)

Years	Cash in Vault and F.C (1)	Deposits in Banks (2)	Libyan T.B.S (3)	Loans and Overdraft	Bills Discount and N,O (4)	Fixed Assets	Other Assets	Total of Assets
1970	7.3	16.8	0.0	53.3	6.8	2.5	13.3	100
1971	4.6	44.8	0.0	35.6	4.3	1.5	9.3	100
1972	5.7	41.2	0.0	41.2	4.7	1.4	5.8	100
1973	8.9	29.8	0.0	47.9	5.3	1.0	7.1	100
1974	7.3	21.0	0.4	58.5	5.2	0.7	7.0	100
1975	5.9	17.3	0.7	64.9	4.6	0.6	6.0	100
1976	6.5	15.6	8.2	60.8	3.0	0.5	5.4	100
1977	6.2	15.1	14.9	54.3	3.6	0.5	5.5	100
1978	6.1	15.1	12.0	57.7	3.0	0.6	5.6	100
1979	6.6	14.3	22.2	49.0	1.7	0.4	5.8	100
1980	6.9	26.3	24.1	37.5	0.9	0.3	3.9	100
1981	7.7	15.3	13.6	51.9	3.0	0.3	8.2	100
1982	7.8	18.4	8.6	55.3	2.0	0.4	7.5	100
1983	6.6	15.0	14.5	55.4	1.7	0.5	6.4	100
1984	5.4	14.4	25.1	47.0	2.3	0.5	5.1	100
1985	4.0	18.3	30.0	41.4	1.9	0.6	3.8	100
1986	3.6	18.2	31.3	38.3	2.8	0.6	5.1	100
1987	2.5	24.7	25.1	38.5	2.6	0.6	5.9	100
1988	2.6	15.9	30.2	42.6	1.2	0.7	6.7	100
1989	1.6	18.5	27.2	45.2	1.0	0.8	5.8	100
1990	1.9	17.6	23.5	49.1	0.8	0.8	6.3	100
1991	2.0	19.8	22.8	49.0	1.1	0.9	4.3	100
1992	2.7	24.3	20.0	45.9	1.0	0.9	5.2	100
1993	2.8	20.0	19.7	49.4	1.3	1.0	5.9	100
1994	3.1	25.5	17.4	46.5	1.4	0.9	5.3	100
1995	3.0	25.4	16.2	46.6	1.3	0.9	6.5	100
1996	3.2	26.5	14.9	37.6	2.8	0.8	14.2	100
1997	5.7	28.2	14.6	41.3	2.5	1.0	6.8	100
1998	3.8	28.1	14.1	43.9	2.0	1.1	7.1	100
1999	4.4	23.2	13.7	50.7	0.7	1.8	5.5	100
2000	5.7	21.2	12.8	51.3	0.1	1.9	6.9	100
2001	6.1	19.4	12.3	51.6	0.0	1.8	8.7	100

4.2 continue: Assets and Liabilities Structure

years	Capital and Reserves	Demand Deposits	Time Deposits	Saving Deposits	Borrowing (5)	Other Liabilities	Total of Liabilities
1970	6.2	50.4	21.0	9.6	1.5	11.3	100
1971	3.7	58.0	15.9	4.4	0.8	17.2	100
1972	6.3	51.3	26.2	4.3	1.7	10.3	100
1973	5.4	46.6	31.0	3.6	1.9	11.6	100
1974	4.4	47.5	35.1	2.8	0.7	9.4	100
1975	4.7	40.2	24.0	2.6	19.7	8.9	100
1976	4.1	45.8	22.9	2.5	15.3	9.4	100
1977	4.4	43.8	24.5	2.5	13.5	11.2	100
1978	5.9	43.1	23.5	1.8	13.6	12.0	100
1979	5.7	39.2	28.5	1.6	10.5	14.5	100
1980	4.3	48.3	20.6	1.5	6.3	19.1	100
1981	4.2	55.7	15.3	1.0	8.8	15.0	100
1982	5.8	50.5	15.0	1.2	9.1	18.3	100
1983	6.1	47.7	17.7	1.3	9.1	18.1	100
1984	4.3	46.6	17.5	1.3	8.8	21.4	100
1985	4.4	48.8	19.0	1.4	6.8	19.5	100
1986	4.6	47.2	20.8	1.6	6.7	19.2	100
1987	4.8	45.8	20.5	1.6	7.0	20.3	100
1988	5.5	41.5	19.7	1.5	10.3	21.4	100
1989	5.4	45.5	16.7	1.5	9.6	21.2	100
1990	5.1	40.0	12.9	1.5	12.4	28.2	100
1991	5.7	41.0	14.2	1.5	9.8	27.8	100
1992	5.2	41.6	14.3	1.7	7.6	29.6	100
1993	5.3	41.0	15.6	2.1	4.9	31.1	100
1994	4.9	43.5	14.7	2.3	4.2	30.5	100
1995	4.6	41.8	17.4	2.4	4.3	29.5	100
1996	5.1	40.2	18.1	2.5	3.0	31.1	100
1997	5.8	41.7	18.9	2.8	4.3	26.5	100
1998	6.1	42.4	21.3	2.9	2.0	25.3	100
1999	7.2	44.9	21.9	3.4	1.5	21.0	100
2000	7.3	44.0	20.9	3.8	1.1	22.8	100
2001	6.9	40.3	23.4	4.3	1.3	23.8	100

Source: C.B.L; (2001d) Economic Bulletin; Monetary and Statistical Book 1966-2000.

1: Cash in vault; foreign currency; balances with banks abroad

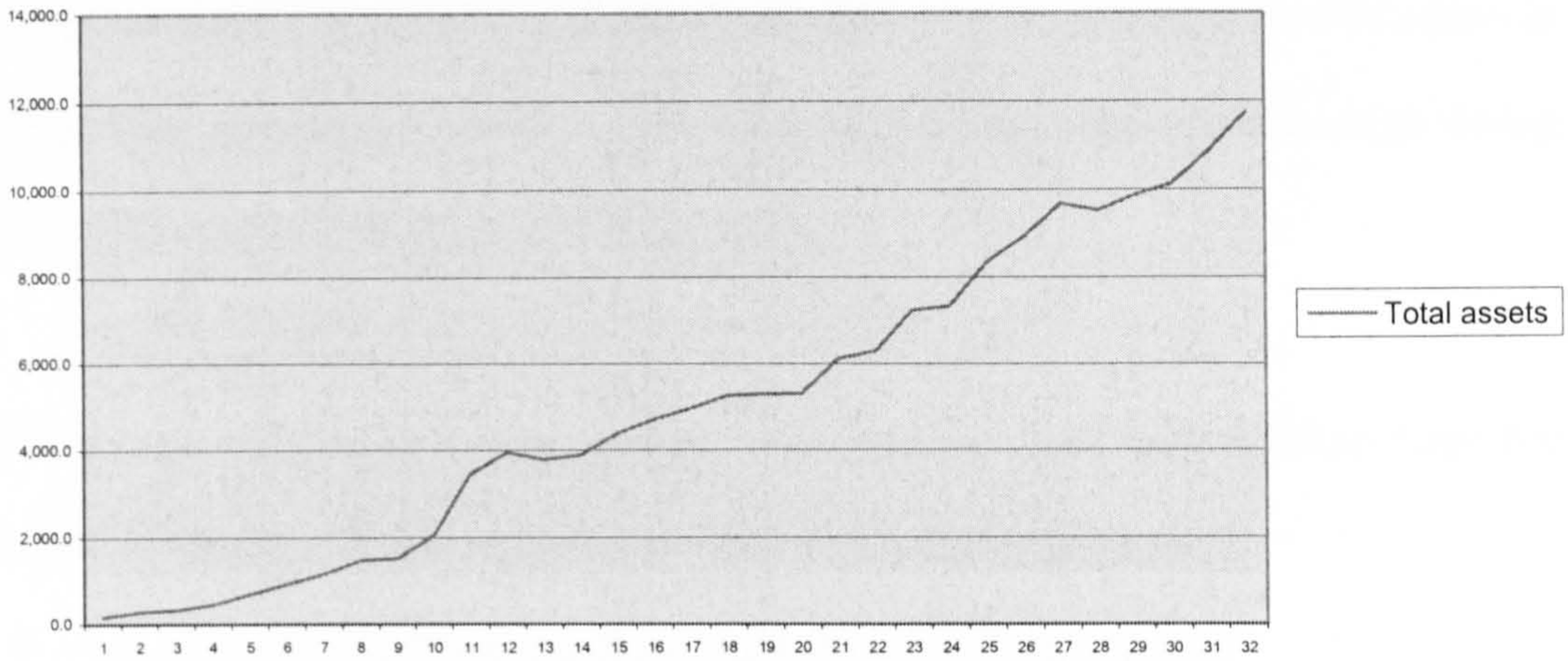
2: Demand and time deposits in CBL and other banks

3: Libyan Treasury Bills Discounted and Securities

4: Bills discounted and negotiated

5: Borrowing: from CBL; Libyan commercial banks; banks abroad

Figure 4.2: Development of Total Assets



For the purpose of understanding these figures brief clarification regarding the balance sheets of commercial banks will be helpful.

A) Cash in Vault, Foreign Currency, and Balances Abroad

Table 4.2 shows that a ratio of the cash in vault, foreign currency and balances abroad stood at 7.3 per cent in 1970, and yet sharp increases in government revenues, following the sudden increase in oil prices, pushed this figure up to 8.9% in 1973. This ratio currently in 2001 stands at 6.1%.

B) Deposits in Banks

Commercial banks are bound to deposit a defined proportion in the CBL with free interest under demand deposits requirements. In addition, commercial banks may hold funds with other banks as part of inter-bank funds to cover short-term liquidity requirements. Article 36 of the Act (1) of 1993 concerning Banking, Currency, and Credit stipulates the following:

> *"Commercial banks shall maintain reserves with the Central Bank of Libya without interest against their deposits liabilities"*

Time deposits are another option in which commercial banks may hold funds with the CBL and/or other banks as time deposits as part of their loans portfolio diversification as means for the generation of profits. The percentage of this item was fluctuated during 1971-72, reaching a highest value of nearly 44%.

However, one of the major banking problems in Libya has been high liquidity. Liquidity management serves various purposes, some of which are the following:

(a) It ensures the availability of funds to meet withdrawals on demand,

(b) It meets the reserve requirement needs of banks, and

(c) It meets short-term expenses of the bank.

In the case of Libya, commercial banks suffer from high liquidity, recorded at LD1323.9 million at the end of the year 2000. This figure exceeds the reserves requirement by 144% (CBL, 2001b).

Cash and deposits represent the primary reserves provided by commercial banks in Libya, where the average figure associated with these services during the period of study is 27 per cent, which is an indication of high liquidity. However, this high liquidity may be attributed to the conservative policies adopted by the managers of these banks aiming at securing liquidity in short-term, and at avoiding a lack of cash flow and a capital market. Therefore high liquidity is an advantage, as it tends to assist a bank in meeting its monetary obligations, even though it might affect its investment activities by reducing its total revenues.

C) Treasury Bills and Securities

In order to make contributions to economic development, commercial banks in Libya are encouraged to invest in bills and securities produced by the government treasury. These bills and securities were issued by the government for the first time, in 1974, when bonds were mainly sold to state-owned banks and other government offices. Hence, from that time, in response to the directives of the CBL it became an obligation to commercial banks to invest in government bills and securities, a policy mainly aimed at assisting the government in coping with the budget deficits. Yet, this aim is likely to be consistent with the notion that confines the role of commercial banks to channelling credit rather than contributing to the process of economic growth.

As shown in table 4.2, this tool has become a regular means for the government to raise funds representing the base of the money market. As can be seen in table 4.2, this figure reached its maximum share of 31.3 per cent of total assets in 1986. Generally, this item rose sharply from 0.4 per cent of the total banks' assets in 1974 to 24.1 per cent in 1980, owing to the government's increasing dependence on development bonds. However, despite is, in the aftermath of the sharp drops in the prices of oil, the state has suffered from massive budget deficits, amounting to LD 2.3 billion in 1981.

D) Credit

Banking credit is the most important part of the asset portfolio of the bank balance sheet, rendering it the highest income yielding asset. However, determining the size of credit depends on banking policy, as well as the nature of Central Bank directives. Furthermore, the lending principles in commercial banks are based on furnishing aspects such as safety, suitability of lending credit policy, and profitability (Ghobashy,1966).

Nonetheless, as mentioned earlier, the nationalisation of the banking sector was mainly aimed at establishing an efficient banking system. Also, given the conditions of central planning following the nationalisation of the banking sector in Libya, the role of commercial banking has completely changed, whereby the new role has been defined by Article (57) of Act (63) of 1971 as follows:

> *"The Central Bank of Libya shall control and supervise commercial banks, regulate the relations between them, coordinate their activities and follow-up their work in implementation of the general policy laid down for the banking sector, in accordance with the general plans of state"* (CBL, 1972a).

Since then, the primary role of commercial banking has become mainly to channel funds to the real sector, which efficiency and profitability as only minor priorities. For instance, the ratio of ROE in all commercial banks has rarely managed to exceed 1%, whereas the ratio of ROA is less than 1% in all banks. Moreover, banking credit policy has been expanded to incorporate various economic sectors in order to streamline the ever-increasing potentialities of commercial banks in the best interest of the national economy. Hence, for the first time, commercial banks services have been extended to cover activities such as real estate loans to lower and medium income groups, provided that the borrower meets the specific conditions set by the rules. Generally, loans, advances and overdrafts are the most important components of the total credit regarding the activities of commercial banks in Libya. This being so, these elements constitute the highest income yielding bank assets necessary to meet the requirements of investment and the current expenditures of the productive system (CBL, 1977).

The total credit of Libyan commercial banks represented approximately 69.5 per cent of total assets in 1975. This ratio, however, decreased sharply in 1980 to 38.4 per cent in,

and in the period 1982-83 it stood at 57 per cent, and then declined to register 30.3 and 51.6 per cent in 1996 and 2001 respectively (see table 4.2). Total credit rose from LD 96.2 million in 1970 to LD 6.1 billion in 2001. It grew 62-fold during that period. Although overdrafts are often regarded as unsecured lines of credit, in Libyan commercial banking loans and overdrafts represent the highest share of total credit during the period 1970-2001, rising to 100 per cent for the years 1999-2001(see table 4.9).

This phenomenon may be attributed to many factors. One important factor is the new role of the banking sector in state policy through its contribution to the development plans by financing trade and the real estate sector, as well as other sectors. Furthermore, the lack of both money and capital markets have confined the commercial banking sector to dealing in specific types of credit, which has restricted short-term investment both nationally and internationally. Another factor is the dramatic political changes when Libya opted for a socialist system in 1979 and the subsequent abolition of the private sector and restrictions on private ownership. This factor may have forced the banking sector to follow severe measures in allowing credit by concentrating on their credit facilities. Finally, the CBL's ownership of commercial banks in Libya meant that the latter a formal departments of the CBL, leading to government monopoly of the banking system.

To sum up, it can be seen that over the entire period 1970-2001 there has been significant growth in total credit. On the other hand, the quality of loan portfolios has suffered from an increase of bad loans as a consequence of government intervention.

This situation that might lead to the deterioration of asset quality or even the long-term failure of the whole banking system.

4.2.1.2 Structure of Liabilities

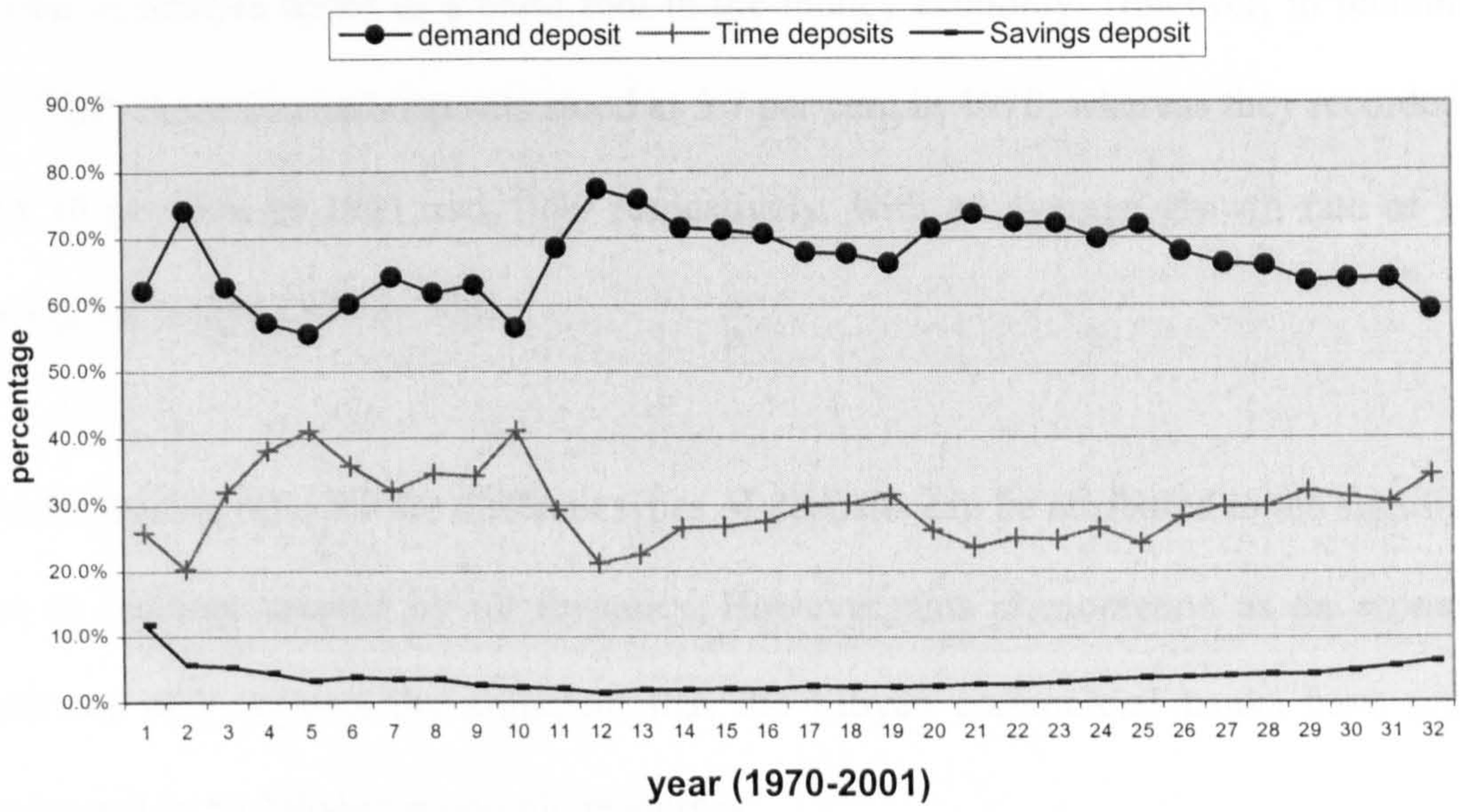
With regard to commercial banks in Libya, liabilities represent an important source of funds on the balance sheet. These funds include capital reserves and liabilities incurred during the bank's routine operations. Table 4.2 indicates that the liabilities of commercial banks in Libya are divided into three main divisions: capital and reserves, deposits, and borrowing from other banks. On the other hand deposits are subdivided into three types including demand deposits (in the case of Libya these are interest-free), time deposits and savings deposits. However, demand deposits represented 62 per cent of the total deposit liabilities of the Libyan banks in 1970, declining to 60 per cent in 1975, before rising again to 73.5 per cent in 1990. Nevertheless this ratio fell to 59% by the end of 2001 indicating the high liquidity associated with commercial banking in Libya. This is a sign of instability, which will usually lead to inflation. However, the high ratio of 77.5 per cent in 1981 has been attributed to the CBL's cancellation of the ten and five dinar banknotes, and the restriction on withdrawals of more than LD 500 per month from any one account under all circumstances (see figure 4.3 and table 4.3). In other words, demand deposits represented 50 per cent of the total commercial banks' assets in 1970. However, these deposits started to decline, recording 39.2 per cent in 1979 and reaching 57.5 per cent in 1982. Yet, during the period 1983-2001 they remained very close to 40 per cent (see table 4.2).

Time and savings deposits have shown significant development during the period under review. In terms of importance, they were rated second in priority regarding banking

deposits. These time deposits particularly represent the deposits of the different government organisations and departments. They rose from LD 33.6 million in 1970 to LD 2.8 billion by the end of 2001 i.e. increasing 80 times during the period under review. Time deposits represented 26 per cent of total deposits in 1970 (about 21 per cent of total assets). The gradual trend of growth started during the period 1972-79, reaching a maximum share of 41.1 per cent in 1974 and 1979. This increase can be ascribed to rises in total deposits of the government. Time deposits as a percentage of the total deposits witnessed a significant fall during the period 1983-1997, primarily owing to a sharp decline in the government deposits, following the government socialist policies as indicated by figure 4.3.

The third type of banking deposits is the savings deposit. Although these rose from LD 15.4 million in 1970 to LD 506.5 in 2001, nonetheless they constituted only 4.3 per cent of total assets, rising to 9.6 per cent in 1970 before dropping to a record low of 1.0 per cent in 1980. However, during the period 1994 to 2001 savings deposits began to increase, registering up to 4.3 % in 2001. This growth may be attributed to the enforcement of Act No 1 of 1993 which has encouraged savings deposits, coupled with the CBL decision in relation to amending interest rates on deposits and changing the Libyan banking habits.

Figure 4.3: Deposits Growth in Libyan Commercial Bank (1970-2001)



As Table 4.3 shows, Libyan commercial banking has in recent time been only marginally successful in attracting time and savings deposits. The ratio of demand deposits to the money supply rose from 25.2 per cent in 1970 to 29.7 per cent in 1976. After a period of fluctuation between 1978-1989, this ratio moved up to 39.7 per cent in 1990 following slightly to 38.6 per cent in 2001. The ratios of the annual average of demand and time deposits to money supply for the entire period 1970-2001 were 27.2 per cent and 13.5 per cent respectively (see table 4.3). The decline in deposits with regard to commercial banks in Libya could be imputed to the preference of individual Libyans to keeping their money in places other than banks, and this might have been the reason behind the commercial banks being incapable of upgrading their banking habits. On the other hand, the proportion of time and savings deposits to money supply stood at 15.3 per cent and 18 per cent in 1970 and 1975 respectively, declining to 10 per cent in 1980 before rising again to 26.5% in 2001.

Moreover, it is important to note that demand deposits, as shown on table 4.3, have grown in relative terms as a basic tool in the money economy. However, in relation to the GDP, these demand deposits stood at 5.7 per cent in 1970, whereas they recorded 14 and 30 per cent in 1981 and 1990 respectively, with an average growth rate of 16% during the period 1970 to 2001.

The increasing ratio for the different types of deposits can be attributed to the significant rise in incomes created by oil revenues. However, this phenomenon as an economic indicator may support the argument that the Libyan commercial banks have under-performed in mobilising economic resources.

A second major source of funds in banks may be classed as other liabilities which include credit to suspended accounts, interest on deposits, accounts to pay taxes and accrued payroll, notes payable, credit cheques and so on. The ratio of these liabilities to total liabilities has fluctuated over time, increasing from 11.3 per cent in 1970 to 17.2 per cent in 1971, and then declining to 14.5 per cent in 1979. The highest ratio was 31.1 per cent in 1993. Notwithstanding this, during the 1990s the ratio remained more or less stable at an average of 29.2 per cent.

The third source of funds is borrowing from the Central Bank and other banks in Libya or/and banks abroad. This constitutes a very small portion of the total liabilities. It represented 1.5 per cent of the total liabilities in 1970, rising to a record 19.7 per cent in 1975. However, during the period 1977-89 this item witnessed sharp declines, falling to

9.6 in 1989, and finally to 1.3 per cent in 2001. This may have been attributed to banks having maintained very high level of liquidity.

Table 4.3: Commercial Bank's Growth in Libya: Deposits Structure

Years	%D.D of TO	% T.D of TO	% S.D of TO	% D.D of M.S	% T+S of M.S	%D.D of GDP	%T+S of GDP
1970	62.2	25.9	11.9	25.2	15.3	5.7	3.4
1971	74.1	20.3	5.6	32.2	11.3	9.2	3.2
1972	62.7	32.0	5.3	25.1	14.9	8.2	4.9
1973	57.4	38.1	4.5	17.9	13.3	6.5	4.8
1974	55.6	41.1	3.3	18.2	14.5	6.3	5.0
1975	60.3	35.9	3.8	27.3	18	9.8	6.5
1976	64.3	32.2	3.5	29.7	16.5	10.3	5.7
1977	61.9	34.7	3.5	27.1	16.7	10.0	6.2
1978	63.0	34.3	2.7	19.1	11.2	8.0	4.7
1979	56.6	41.1	2.3	18.3	14.1	7.5	5.7
1980	68.6	29.3	2.1	22	10	8.3	3.8
1981	77.4	21.2	1.4	28.3	8.3	14.0	4.1
1982	75.7	22.5	1.8	25.1	8.0	11.5	3.7
1983	71.5	26.6	1.9	23.8	9.5	11.0	4.4
1984	71.2	26.8	2.0	26.5	10.7	13.2	5.3
1985	70.6	27.5	2.0	25.7	10.7	15.8	6.6
1986	67.8	29.8	2.3	27.7	13.1	18.3	8.7
1987	64.9	32.6	2.5	23.9	12.9	19.4	10.5
1988	66.2	31.5	2.3	26.0	13.2	18.0	9.2
1989	71.4	26.2	2.4	26.1	10.5	17.7	7.1
1990	73.6	23.7	2.7	39.7	14.3	30.2	10.8
1991	72.3	25.0	2.7	38.2	14.7	26.0	9.9
1992	72.2	24.8	3.1	35.6	13.7	26.6	10.2
1993	69.9	26.6	3.5	34.1	14.7	27.1	11.6
1994	72.0	24.3	3.8	30.2	11.8	25.9	10.1
1995	67.9	28.2	3.9	27.4	13.0	24.0	11.3
1996	66.1	29.8	4.1	32.9	16.8	20.4	10.4
1997	65.8	29.8	4.4	24.0	12.4	18.0	9.3
1998	63.6	32.0	4.4	23.8	13.6	19.5	11.2
1999	63.9	31.2	4.9	23.6	13.3	18.5	10.5
2000	64.0	30.5	5.6	26.2	14.8	16.3	9.2
2001	59.2	34.4	6.3	38.6	26.5	32.0	22.0
Average	**66.7**	**29.7**	**3.6**	**27.2**	**13.5**	**16.0**	**7.8**

Source: C.B.L; Economic Bulletin; Monetary and Statistical Book 1966-2000, *and IFS different issues*
D.D= Demand Deposit; T.D=Time Deposit; S.D= Savings Deposit; M.S=Money Supply TO=Total Deposits

Owner's equity has not been a very significant source of the liabilities for Libyan commercial banks. The ratio of owner's equity to the total liabilities in commercial banks has shown a continuous decline from 6.2 per cent in 1970 to 4.3 per cent in 1980,

before rising to 7.3 in 2000 and dropping again to 6.9 per cent in 2001, as shown in table 4.2. These fluctuations could be understood as a significant growth of banking reserves, which increased from LD 4.2 million in 1970 to nearly LD 598 million in 2001.

Furthermore, over the same period, the commercial banks' capital has increased from LD 38.6 million to LD 206 million, which is consistent with the capital adequacy ratio imposed by the Basle Committee in 1988.

From the foregoing it can be concluded that the development of the commercial banking sector in Libya has been significantly influenced by political events, social and economic plans, and the amendment introduced to the banking laws. For example the increase in the prices of crude oil prices have tended to increase the national wealth, with the subsequent growth of the volume of the banking industry in the country.

4.2.2 Growth of Network Branches

The main purpose of banking is the mobilisation of credits from all sources in the country. However, to reach that end, banks need to extend their activities by expanding their branch networks. Both table 4.3 and figure 4.3 attest to the fact that the increase in both time and savings deposits may be attributed to the expansion of the branch networks during the last three decades.

However, the banking activities in Libya have not been confined only to the main cities in the country, but have extended to rural areas as well. This is expected to promote the

idea of the banking business amongst the people, and will definitely boost savings in various productive sectors.

Table 4.4: Commercial Banks and their Branches

Year	Number of Banks	Number of Branches	Growth of Branches	Average Branch per Bank	Population in Million	Number of Person per Branches
1970	10	53	-	5.3	1.98	37,358
1975	5	94	77.3	18.8	2.43	25,851
1980	5	116	23.0	23.2	2.76	23,793
1986	5	169	46.0	33.8	3.52	20,828
1992	5	230	36.5	46.0	4.51	19,609
1995	5	245	6.5	49.0	4.76	19,429
2000	5	282	15.1	56.4	5.29	18,759

Source: *Central Bank of Libya; Annual Report (different issues); Population IFS; Year Book, 2001*

Following the promulgation of amendments in the banking laws in 1971, the objective of the banking sector in Libya has been to effectively participate in the economic development plans. The new government in Libya has realised that no meaningful development can be achieved without the development of rural areas. As in other developing countries, Libya has encouraged state-owned banks to open branches in rural areas, even when these branches are not economically feasible, in order to promote rural development. However, in such cases, state-owned banks will become tools for the generation of political support and employment.

It can be seen in table 4.4 that there has been a remarkable growth in the number of bank branches. However, despite this growth, the quality of service has remained modest. In 1970 there were 53 branches owned by 10 banks most of which were foreign banks. By 1975, however, the number of commercial banks declined to 5 banks after the Libyanisation of foreign banks following the enforcement of Act 63 of 1971. Yet, in

1980 the number of branches had increased to 116. Also there were 5 state-owned commercial banks with 282 branches in 2000. The growth rate of network branches has been positive, with the highest rate of 77.3 per cent recorded in 1975.

As shown on table 4.4, the growth rate of branches of commercial banks was 77.3 per cent in 1975 and 46 per cent in 1986, declining to 6.5 % in 1995 and rising again to 15.1 per cent in 2000. This sharp decline in 1995 might be attributed to many factors. One of these factors is the fact that the decision to expand these branches was not based on proper feasibility studies, which seriously affected the financial status of the parent banks. For instance, branches reported as unsuccessful exceeded 30 per cent on average of total branches (see table 4.5A).

Yet further branches were established in response to the state's general plans aiming at putting an end to immigration from rural to urban areas. Finally, in 1993 the government issued the new banking Act no 1 of 1993, which allowed the establishment of private banks. The new banks, known as domestic banks, aimed at transferring the rural communities from behind to advancement; and to make them compete with commercial banks. Nonetheless the number of domestic banks has currently risen up to 47 branches across the country.

Table 4.5A: Number of Commercial Bank Branches and their Financial Positions

Banks	No: of Branches	% Of Loss Branches/Total Branches	Annual Report
The National	39	33%	1989
Jamahiriya	41	15%	1992
Sahara	24	25%	1990
Umma	31	87%	1991
Wahda	42	38%	1991

Source: *Imenisy, (1993).*

Table 4.4 also shows that the number of persons per branch has fallen from 37,358 in 1970, to 18,759 persons in 2000. The main problem was that in the previous banking system banks were mainly concentrated in the major cities where business was easier and more lucrative rather than participating in the development of the rural areas. The Libyan government has made some attempts to sort out this situation by extending the branch network of commercial bank to every part of the country. Table 4.5B shows that the concentration of the branches of commercial banks appears to be in favour of urban centres. This is due to the fact that major urban areas have the resources that are likely to facilitate banks in performing smoothly and making profits, so that banks follow business instead of leading business.

Table 4.5B: Distribution of Commercial Banks Branches based Municipalities 1995

	Banks					
Municipality	**Notional**	**Jamahiriya**	**Umma**	**Wahda**	**Sahara**	**Total**
Tripoli	13	19	14	15	10	71
Benghazi	4	5	2	14	8	33
Sabha	8	3	5	1	4	21
Zawiya	4	6	6	6	5	27
Gulf Sirte	6	7	7	11	3	34
Al-jabal Al-Agter	12	7	1	9	3	32
Al-jabal Al-Garrbi	5	7	6	8	1	24
Total	52	54	41	64	34	245

Source: *CBL, 1995*

4.2.3 Comparative Analysis

In order to examine the development of the banking system in Libya, it is useful to conduct a comparative analysis of different banking systems using both micro- and macroeconomic indicators. For this purpose the experiences in Malaysia and Saudi Arabia are useful, as both countries show similar economic characteristics to Libya.

As table 4.6 shows, the per capita income was highest in Saudi Arabia with U$ 7621, followed by Libya and Malaysia with U$ 5091 and U$ 3869 respectively. The lowest average annual growth of the GDP over the period 1980-2000 was shown by Libya, which recorded 3.1 per cent. This figure corresponds to 8.9 per cent in Malaysia and 10.9 per cent in Saudi Arabia.

Table 4.6: Economic Indicators

Indicators	Libya	Malaysia	Saudi
Average of Growth of GDP 1980-2000	3.1	8.9	10.9
Fiscal Deficit as % of GDP 1980-2000	3.2	4.4	3.4
Per Capita Income in (2000) $	5091	3869	7621
Time and Savings Deposits as % of MS 1980-2000	20.1	68.9	26.5
Demand Deposits as % of GDP 1980-2000	54.0	36.7	43.1
Demand Deposits as % of Total Assets of Commercial Banks 1980-2000	44.1	36.7	12.1
Total Deposits as % of GDP 1980-2000	43.2	109	52.2
Population in Million at 2000	5.29	23.27	20.85

***Source**: International Financial Statistics (different issues), The Middle East Business, 2001*

However, all three countries have suffered from government budget deficits, and all exhibited similar rates of deficit. Time and savings deposits as a proportion of money supply (M2) was highest in Malaysia, with an average of 68.9 per cent, for the simple reason that Malaysia has a higher level of financial intermediation than the other two countries. This ratio corresponds to 20.1% and 26.5% in Libya and Saudi Arabia respectively.

Table 4.6 shows that the average total assets of the commercial banking sector relative to the GDP stood at 43.2 in Libya for period the 1980-2000, whereas this ratio was 109 per cent for Malaysia and 52.2 per cent for Saudi Arabia. On the other hand, the ratio of demand deposits as a percentage of both the GDP and the total assets was highest in Libya (54% and 44.1% respectively) compared to Malaysia (36.7% and 12.1% respectively) and Saudi Arabia (29.2% and 43.1% respectively).

The proportion of demand deposits to the total assets on average recorded 44.1 per cent in Libya, indicating that Libyan commercial banks have been unable to attract and mobilise time and savings deposits. In addition, Libya has a lower percentage of total assets to the GDP; which may reflect the poor participation of commercial banks in GDP. The share of the Libyan financial sector on average between 1983 and 1995 was 5.8 per cent (Abu-Zaakook, 2000). Given the results of this analysis, it becomes unclear as to why the Libyan commercial banking has not performed well in mobilising its resources compared to other similar developing economies.

4.3 The Monetary Policy Function and its Instruments

Instruments of Monetary Policy

Monetary policy could be defined as the methods by which the monetary authorities (i.e. central bank and treasury) could seek to control changes in the money stock and the cost and availability of credit, in order to achieve various macro-economic objectives (Hanson, 1983).

Monetary policy would usually tend to aim for specific goals, such as the stability of prices in general, economic growth, and stability in the balance of payments. However, to fulfil these objectives, monetary policy may resort to either one of the following approaches:

1) Quantity tools are aimed at controlling the money stock and levels of bank credit. These include open-market operations, changes of requirement reserves, and discount rates.

2) Quality tools influence the flow of credit directed to specific sectors, for instance real estate, the agricultural sector and so on. These tools are commonly used in the developing countries because of their limited money and capital markets. Quality tools have two instruments: the moral suasion and the determination or restriction of credit.

Prior to discussing the monetary instruments of the CBL, it is necessary to point out that the Libyan economy has conspicuous monetary features. It is considered as narrow and under-developed. This inference has been drawn from many financial and monetary ratios during the period of study, as shown in tables 4.7, 4.8 and 4.9.

Currency in circulation is considered as the main property of the money supply (M1) as well as a medium of exchange. The proportion of currency in circulation to money supply rose from 23.7 in 1980 to 26 per cent in 1986 and to 41.2 and 31.0 per cent in 1993 and 2001 respectively, as shown in table 4.7. This percentage is very high compared to other countries. For example in the Saudi Arabia, and Malaysia it has been 13.8 and 10.3 per cent in 2002 respectively (SAMA, 2003; and BNM, Annual report 2003). This difference reflects the deficiencies of the Libyan banking system. The fall in this ratio during the period 1980-85 could be attributed to decisions of the CBL regarding restrictions on cash withdrawals.

Table 4.8 shows the relationship between GDP and M1. It can be seen that the growth of GDP was associated with increases in money supply, but the annual percentage changes in money supply were higher than those of GDP.

Table 4.7: Money Supply and its Components 1970-2001

Years	Money Supply (narrowly)			CC to M1	DD to M1
	CC (1)	DD (2)	M1 (1+2)		
1970	112.2	128.8	241.0	46.6	53.4
1971	120.7	243.8	364.5	33.1	66.9
1972	147.4	265.6	413.0	35.7	64.3
1973	202.6	311.4	514.0	39.4	60.6
1974	262.2	502.8	765.0	34.3	65.7
1975	346.0	521.5	867.5	39.9	60.1
1976	435.9	703.5	1139.4	38.3	61.7
1977	585.0	858.8	1443.8	40.5	59.5
1978	868.5	819.3	1687.8	51.5	48.5
1979	1055.7	1193.7	2249.4	46.9	53.1
1980	685.7	2213.2	2898.9	23.7	76.3
1981	791.2	2721.0	3512.2	22.5	77.5
1982	889.9	2342.4	3232.3	27.5	72.5
1983	838.2	2046.2	2884.4	29.1	70.9
1984	767.6	1943.8	2711.4	28.3	71.7
1985	985.1	2507.2	3492.3	28.2	71.8
1986	1023.8	2017.7	3041.5	33.7	66.3
1987	1068.2	2370.4	3438.6	31.1	68.9
1988	899.6	2112.0	3011.6	29.9	70.1
1989	1131.7	2550.3	3682.0	30.7	69.3
1990	1461.1	3184.3	4645.4	31.5	68.5
1991	1620.9	2821.8	4442.7	36.5	63.5
1992	1982.2	3186.0	5168.2	38.4	61.6
1993	2216.9	3168.0	5384.9	41.2	58.8
1994	1989.8	4067.6	6057.4	32.8	67.2
1995	2035.4	4337.0	6372.4	31.9	68.1
1996	2419.8	4298.2	6718.0	36.0	64.0
1997	2534.2	4487.4	7021.6	36.1	63.9
1998	2698.6	4489.1	7187.7	37.5	62.5
1999	2634.8	5256.3	7891.1	33.4	66.6
2000	2699.2	5070.0	7769.2	34.7	65.3
2001	2559.6	5708.3	8267.9	31.0	69.0

Source: *CBL, (2001)*

CC: *Currency in Circulation, DD: Demand Deposits, M1: Money Supply (narrowly).*

As tables 4.7 and 4.8 show, the money supply in Libya has shown relatively low ratios of growth since 1970. During the last three decades ending in 2001, the money supply has risen from LD 241 million to LD 8.3 billion, with an annual average growth rate of 13 per cent. The ratio of money in circulation to the total money supply represented

nearly 35 per cent during the period under review. However, this confirms the idea that the Libyan banking sector has not performed well to improve banking habits.

Table 4.8:Money Supply and GDP in Libya 1970-2001(in LDmn)

Years	Money Supply	% of change	GDP	% of change	M1 as of GDP	Liquid Assets	Liquid Assets as % of GDP
1970	241.0		1426.0		16.9	31.8	2.2
1971	364.5	51.2	1627.0	14.1	22.4	125.6	7.7
1972	413.0	13.3	1798.0	10.5	23.0	137.5	7.6
1973	514.0	24.5	2246.0	24.9	22.9	140.3	6.2
1974	765.0	48.8	3883.0	72.9	19.7	158.6	4.1
1975	867.5	13.4	3780.0	-2.7	22.9	169.2	4.5
1976	1139.4	31.3	4907.0	29.8	23.2	192.5	3.9
1977	1443.8	26.7	5763.0	17.4	25.1	234.0	4.1
1978	1687.8	16.9	5688.0	-1.3	29.7	244.5	4.3
1979	2249.4	33.3	7846.0	37.9	28.7	315.9	4.0
1980	2898.9	28.9	10882.0	38.7	26.6	930.9	8.6
1981	3512.2	21.2	9401.0	-13.6	37.4	632.8	6.7
1982	3232.3	-8.0	9373.0	-0.3	34.5	719.8	7.7
1983	2884.4	-10.8	8932.0	-4.7	32.3	624.0	7.0
1984	2711.4	-6.0	8364.0	-6.4	32.4	661.4	7.9
1985	3492.3	28.8	8227.0	-1.6	42.4	885.7	10.8
1986	3041.5	-12.9	7132.0	-13.3	42.6	927.3	13.0
1987	3438.6	13.1	6253.0	-12.3	55.0	1325.0	21.2
1988	3011.6	-12.4	6791.0	8.6	44.3	870.4	12.8
1989	3682.0	22.3	7537.0	11.0	48.9	1009.0	13.4
1990	4645.4	26.2	8095.0	7.4	57.4	1115.0	13.8
1991	4442.7	-4.4	8887.0	9.8	50.0	1297.2	14.6
1992	5168.2	16.3	9269.0	4.3	55.8	1820.2	19.6
1993	5384.9	4.2	9148.0	-1.3	58.9	1538.5	16.8
1994	6057.4	12.5	9444.0	3.2	64.1	2238.5	23.7
1995	6372.4	5.2	10232.0	8.3	62.3	2370.8	23.2
1996	6718.0	5.4	11945.0	16.7	56.2	2653.1	22.2
1997	7021.6	4.5	13284.0	11.2	52.9	2777.7	20.9
1998	7187.7	2.4	12619.0	-5.0	57.0	2863.3	22.7
1999	7891.1	9.8	14314.0	13.4	55.1	2476.3	17.3
2000	7769.2	-1.5	14321.4	0.1	54.2	2435.7	17.0
2001	8267.9	6.4	14795.5	3.3	55.9	2511.1	17.0

Source: *I. F.S Yearbook 2002; CBL: Economic Bulletin (different issue), M1=Money Supply (narrowly definition).*

From the statistics in table 4.8, it can be noted that a consistent relationship between the financial figures and GDP in general has been established between 1970 and 2001. Moreover, table 4.8 shows a significant increase in the size of the total liquid assets from LD 31.8 million in 1970 to LD 2.5 billion in 2001, with an annual average growth rate

of 23.8 per cent. This growth may be imputed to the significant increase in salaries and incomes.

Table 4.9: Total credit and Total deposits as percentage to GDP 1970 to 2001(in LDmn)

Years	(1)Total Credit	(2) GDP	(3)Total Credit as% of GDP (1/2)	(4) Total Deposits	(5)Total Deposits as % of GDP(4/2)	(6) (1/4)%
1970	96.2	1426.0	5.9	129.7	9.1	0.74
1971	107.6	1627.0	6.0	211.5	13.0	0.51
1972	148.0	1798.0	6.6	263.6	14.7	0.56
1973	240.9	2246.0	6.2	367.1	16.3	0.66
1974	448.6	3883.0	11.9	602.3	15.5	0.74
1975	641.9	3780.0	13.1	610.5	16.3	1.05
1976	739.5	4907.0	12.8	826.5	16.8	0.89
1977	853.2	5763.0	15.0	1004.4	18.1	0.85
1978	926.0	5688.0	11.8	1043.4	18.3	0.89
1979	1040.4	7846.0	9.6	1423.2	18.1	0.73
1980	1321.2	10882.0	14.1	2416.2	22.2	0.55
1981	2167.7	9401.0	23.1	2841.3	30.2	0.76
1982	2162.0	9373.0	24.2	2517.0	26.9	0.86
1983	2208.1	8932.0	26.2	2581.6	28.9	0.86
1984	2153.7	8364.0	26.4	2858.8	34.2	0.75
1985	2033.0	8227.0	28.5	3247.7	39.5	0.63
1986	2031.6	7132.0	32.5	3437.9	48.2	0.59
1987	2157.5	6253.0	31.8	3567.4	57.1	0.60
1988	2316.5	6791.0	30.8	3310.0	48.7	0.70
1989	2441.9	7537.0	30.2	3374.7	44.8	0.72
1990	3053.3	8095.0	34.4	3321.4	41.0	0.92
1991	3152.3	8887.0	34.0	3565.9	40.1	0.88
1992	3392.2	9269.0	37.1	4173.0	45.0	0.81
1993	3710.2	9148.0	39.3	4301.8	47.0	0.86
1994	3986.1	9444.0	39.0	5035.9	53.3	0.79
1995	4281.5	10232.0	35.8	5503.1	53.8	0.78
1996	3915.0	11945.0	29.5	5879.0	49.2	0.67
1997	4165.9	13284.0	33.0	6039.6	45.5	0.69
1998	4530.2	12619.0	31.6	6577.8	52.1	0.69
1999	5203.6	14314.0	36.4	7117.8	49.7	0.73
2000	5584.0	14321.4	39.0	7463.0	52.1	0.75
2001	6057.6	14795.5	40.9	7984.0	54.0	0.76

Source: *I. F.S Yearbook 2002; CBL: Economic Bulletin (different issue)*

Table 4.9 shows a significant growth of total credit from LD 96.2 million in 1970 to LD 6 billion in 2001. As table 4.9 shows, the ratio of the total credit to GDP fluctuated between 6 per cent and 14 per cent during the period 1970-80. It then started to increase from 23.1 per cent in 1981 to 41 per cent in 2001.On the other hand, the lower

percentage of total credit to GDP may reflect a lack of banking sector accountability in the Libyan economy, and the lack of a money market. It could also be attributed to the liquidity preferences of the Libyan people. Column 6 in table 4.9 shows the percentage of total deposits to total credit, which ratio reflects the capabilities of the commercial banks in investing their resources. However, the results show fluctuations in this ratio the during period under study, recording an average of 75%. This may indicate that commercial banks in Libya have only invested 75 per cent of their resources, and the remaining 25 per cent has not been invested. This ratio is higher by 10% then the liquidity ratio imposed by the CBL.

4.4 The Initial Reform Policy in the Banking Sector

As mentioned earlier, in 1978 the private sector was abolished and all economic activities came under government control. By 1989, the Libyan government permitted the private ownership of small and medium industries such as farms, and hotels. Since that time the Libyan government has moved towards liberalising the different economic sectors by adopting a new policy enabling individuals to participate in the economic cycle, with special consideration being given to the banking sector in general and commercial banks in particular.

4.4.1 The Need for Banking Reforms in Libya

As discussed earlier, banks play a vital role in any economy by offering credit for the development process as well as bearing the responsibility to maintain the confidence of the public in the integrity and security of banks. Therefore, banks need to work efficiently.

In the case of Libya, the banking sector was owned and controlled by the government following the nationalisation programme in the early 1970s. The need for banking reforms in Libya became very important in this period. The main reasons behind this might have been associated with several factors. Libya commenced economic reform policies in the mid 1980s, reinstating the private sector and adopting a new policy enabling individuals to participate in the different economic activities. Thus the development and promotion of these activities require sustained efforts to be made by a strong and effective banking system. An effective and efficient bank, on the other hand, requires the continuous improvement and diversification of its services. However, the Libyan banking sector has suffered from government intervention in the last three decades. That intervention has led to many problems including the laxity of management and lack of internal control systems. These other problems may have made banking reforms programmes more urgent. Among the banking reforms needed the following should be considered as top priorities:

1) ***New Banking Law***

Until 1993, Libyan commercial banks operated under the terms of Law no 4 of 1963 and its subsequent amendments that including Law no. 63 of 1971, Law no. 158 of 1972 and no. 38 of 1973. Yet, on March 21st 1993, the General Peoples' Congress in Libya promulgated a banking Law no. 1 of 1993. Consequently, provision 2 of that law has overridden both the Currency law of 1955 and law no. 4 of 1963, and its amendments.

The banking law no. 1 of 1993 was divided into four sections and ninety-four articles altogether. The first section contained four chapters and dealt with the Central Bank of Libya, where Articles 1 to 12 relate to issues pertaining to the establishment and

management of the Central Bank of Libya. Under the terms of the new act, one hundred million dinars were allocated as initial capital to the Central Bank of Libya, subject to periodical adjustments. Chapter two, on the other hand, outlined the objectives and functions of the Central Bank. Chapter three of part I mainly discussed the issuance of currency in the country, whereas Articles 24 and 25 considered issues related to the control of commercial banks. Chapter five, on the other hand, discussed issues having to do with the accounts of the Central Bank.

In order to control and to supervise commercial banks, the Central Bank was given the authority to regulate banking credit as stipulated by Article 34 as follows:

1) *Methods used in assessing the various assets of banks;*
2) *Fixing of the proportion and kind of liquid funds which must be maintained by banks;*
3) *Determining the channels in which banks are prohibited to invest their funds;*
4) *Fixing reserves to be made available against such assets may be subject to great fluctuations in value;*
5) *Fixing bank charges collected from or paid to customers in any manner whatsoever;*
6) *Determining maximum interest rates on all creditor and debtor accounts and arrear charges;*
7) *Determining the margin allowed between the interest rate or rediscount rate fixed by the bank and the discount rates charged by banks or their customers if the credit documents are eligible for rediscount or as collateral a loan;*
8) *Fixing the percentage of each type of credit in relation to the total of these operations and determining the maximum amounts and durations of credit operations, investment or letters of credit in respect of all or some of banks and with relation to all or some of these operation;*
9) *Determining the minimum limit of cash margin for opening documentary credits and letters of guarantee in general or in respect of a specific kind thereof; and*
10) *Prescribing the statements to be published and the manner of such publication* (Banking Law No 1 of 1993).

One important change in the law has been introduced in section two. That change relates to commercial banking, regarding supervision and other duties. Article 51, for example, defined the new duties of commercial banks as follows:

> *Contribution in the financing of development plans, formation of companies participation therein and in economic projects shall be among the principal functions of the commercial banks in accordance with the rules laid down herein.*

However, Article 53 of this law stipulates that commercial banks shall form a Libyan Joint Stock Corporation raising their underwritten capital from five hundred thousand dinars as stipulated by Law 63 of 1971 to no less than three million dinars distributed in nominal shares not exceeding 10 dinars according to the new act. Furthermore, this article determines the subscriptions of individuals and legal entities, public or private.

Yet, the second paragraph of the same article would illustrate that foreign banks could be allowed to open branches in the country stating that:

> *"Non-national banks may be allowed to open branches, agencies or representative offices in G.S.P.L.A.J. in accordance with the terms and conditions laid down by the Board of Directors of the Central Bank of Libya approved by the General People's Committee".*

The second and third chapters in section two outlined the general duties and provisions of commercial banks, whereas parts three and five discuss exchange control and punitive provisions respectively.

The banking law no 1 of 1993 has provided the Central Bank of Libya with the necessary powers in order to render it capable of practicing its duties as a leading force of monetary authority. But in the meantime, under the terms of this law, the appointment

of the board of directors for commercial banks became the duty of the CBL, overruling the provisions of Article 54 of law no. 63 of 1971. The new law stipulates that:

> *"The Central Bank of Libya shall have representatives in the boards of commercial banks. The number of such representatives shall not be less than the percentage owned by the Central Bank of Libya in the capital of these commercial banks, and provided that the Chairman and General Manager shall be included"* (CBL, 1972a)

After describing the main changes introduced by the new Banking Law no 1 of 1993, the following important question follows: Does the current banking law offer sufficient reform?

The answer to this question will necessitate the determination of the criteria of the banking law by analysing certain aspects. For example, as a sign of goodwill, and in order to win the people's trust in the banking sector, the new law has for the first time removed the restrictions on depositors to dispose of their accounts, as stipulated by article 71. Furthermore customers' accounts and transactions shall be dealt with in absolute confidentiality, only to be disclosed for legal reasons.

The new banking Act has allowed the establishment of a new generation of commercial banks, which will take the form of stock firms. The underwritten capital of these firms would be no less than ten million dinars (later amended by Law 9 of 1995 to 3 million dinars) to be distributed among 300 thousand nominal shares i.e. 10 dinars per share given that the maximum shares held by individuals should not exceed one per cent of the total shares or two per cent for a group.

Moreover, the new law has not given the Central Bank the complete independence. For instance, it cannot issue banknotes and coins and other denominations without authorisation from the Minister of the Treasury, as stipulated by Article 26. In addition, banks must obtain a permit before carrying out any banking business, and no mergers can take place without the approval of the authorities concerned, as stipulated by Articles 52 and 67. This situation may confirm the fact that the Central Bank of Libya is still not fully independent and is subject to government intervention.

However, the new law has extended the maximum temporary advances to the public Treasury to cover budget deficits from 10 per cent to 17 per cent from the estimated total budget revenues, on condition that these sums are repaid in advance before making any new advances. This article led to an increase in the size of internal debt to LD 5.9 billion in 1991, which then became the main problem facing the Libyan economy. Moreover, according to Article 53 of law no. 1 of 1993, the Central Bank of Libya is entitled to offer favourable interest rates to projects selected by the General Peoples' Committee, and the commercial banks will be offered credit to undertake these projects. The Central Bank may rediscount such loans up on the request of commercial banks. In fact, this article may pose many problems for commercial banks including increases in the size of the total credit to development projects, exposing them to insolvency. To sum up the new Banking law constituted the first step towards banking reforms, and yet various modifications were needed in order to cope with the requirements of these reforms in the subsequent phases.

2) *Domestic Banks*

Libya has experienced significant changes in several activities, including the reinstatement of the private sector at the end of 1989, and the subsequent new Banking Act No. 1 of 1993. The banking system has also witnessed the establishment of new banks under the name of domestic banks (Al-Massaraf Al-Ahliya), which have played an active role in development projects. As table 4.10 shows, the total liabilities of domestic banks including contra accounts increased dramatically to LD 1.1 billion by the end of 2001 compared to LD 220 million in 1997.

Liquidity assets in domestic banks have rose significantly from LD 150 million in 1997 to LD 460.4 million in 2001. The growth of this item may be attributed to increased deposits with banks during the period under review. The percentage of liquidity assets to total financial assets declined from 68 per cent in 1997 to 43 per cent in 2001. This fall could be imputed mainly to the growth of credit facilities of domestic banks that had extended their loans and advances rather than depositing in the Central Bank or other banks to a record LD 396.8 million in 2001.

The credit facilities of domestic banks have witnessed relative increases, with annual average rates of growth of 47.3 per cent. On the other hand, the proportion of total credit to total assets has risen progressively from 12 per cent in 1997 to 37 per cent in 2001. Overdraft and advances represented 95 and 98 per cent in 2000 and 2001 respectively, which testifies to the ease and scale of their profits.

Table 4.10: Aggregate of Assets and Liabilities of Domestic Banks 1997-2001

	1997	1998	1999	2000	2001
Assets					
Cash in Vault	5.7	9.5	13.2	16.5	26.8
Deposits in C.B.L	61.4	40.1	82.4	113.1	83.6
Deposits and investments	87.8	137.7	229.1	306.5	350.1
Loans Advances	26.3	81.4	164.9	264.4	396.8
Other assets	8.9	16.1	16.5	33.6	59.9
Contra account	30.2	34.2	41.6	100.0	155.8
Total	220.3	319.0	547.7	834.1	1073.0
Liabilities:					
Capital and Reserves	33.6	47.0	55.6	60.0	29.9
Deposits*	104.0	178.8	355.5	547.0	741.0
Public sector	-	-	233.5	348.8	-
Private sector	-	-	111.1	153.4	-
Borrowing from banks	30.3	7.1	34.0	54.2	54.9
Other liabilities	22.2	51.9	61.0	72.9	91.4
Contra accounts	30.2	34.2	41.6	100.0	155.8
Total	220.3	319.0	547.7	834.1	1073.0

Source: *CBL, (2001b)*

* *Including savings accounts and the insurance.*

By the end of 2000, capital and reserves had increased to a record of LD 60 million i.e. about 7.2 per cent of total financial assets and liabilities. This would indicate that the small amount of capital that was available for domestic banks had limited the efforts of these banks to contribute to rural development. Total deposits reached LD 741 million at the end of 2001, including demand deposits of LD 569.6 million, time deposits of LD 84 million and savings deposits of LD 87.7 million. However, these increased from LD 104 million to 355.5 million in 1997 and 1999 respectively. Yet, public sector was the main contributor to these deposits, providing nearly 90% of total deposits by the end of 2000.

The experiment with domestic banks in Libya is relatively new, so that the figures shown on the balance sheets of these banks may not reflect their real potential. Nonetheless domestic banks seem to be following the same strategies in state-owned banks, as they are still dependent on the public sector as the main sources of bank deposits, representing 65 per cent of their total deposits in the year 2000. This might

indicate the failure of domestic banks to attract deposits from individuals. As table 4.10 shows, the total assets of domestic banks in the year 2000 was LD 737 million, equivalent to only 6% of that of commercial banks. This may indicate that domestic banks are small and not particularly successful. In addition, this would mean that the small amount of capital they have attracted would restrict their planning capabilities.

3) Additional Reform Stages

In 1988, the government of Libya took a significant step towards liberalising its economy by allowing private activities in areas such as small and medium industries, retail trade and agriculture business. However, in 1992 the government initiated fuller privatisation by passing a law that would allow the sale of state assets to the private sector, paving the way for the latter to take part in the process of economic development. Nonetheless, a wide range of further reform measures will be necessary to stimulate the Libyan economy towards achieving its potential.

Consequently, the first private commercial bank was established in November 1995 under the name of the Bank of Commerce and Development. Furthermore, the new Act allowed foreign banks to open branches or representative offices subject to the Central Bank approval. This led to the establishment of some foreign banks in Libya such as the Arab Banking Corporation, the Maltese Bank and the Canal Bank of Egypt (Tertorov, 2002b). It also resulted in the emergence of policies concerning the liberalisation of exchange in the country. However, since 1986, the exchange rate of the Libyan currency against foreign currencies has suffered from a series of devaluations, whereby substantial government intervention has forced foreign currency dealing onto the black

market. For instance, the black market rate of the Libyan currency (the Dinar) against the US Dollar stood at $1= LD 3.75 for many years until the end of the 1990s, whereas the official rate remained unchanged, i.e. around $1 = LD 0.41. Yet, to tackle this problem, the Libyan government issued instructions to the Central Bank to consider two different rates for the dinar. These are the ordinary commercial rate for individual customers, and the official rate for government agencies and foreign companies. However, the Central Bank has, so far, met with some success regarding its plans and the 2002 currency reforms eventually closing the gap between the two rates (Tertorov, 2002 a)

4.4.2 Assessing the Libyan Banking Reforms Experience

To sum up, in consideration of the initial reform policy of the banking sector in Libya, it can be seen that in the early 1990s the Libyan government commenced the reform of the banking sector, which included the promulgation of new banking laws and other relevant economic and investment laws aiming at introducing a full package of reforms featuring the establishment of private and domestic banks as well as amending the national currency exchange rate against foreign currencies.

However, in order to properly evaluate the banking reforms in Libya, the following points could be useful for better understanding and assessment.

1) The pace of banking reforms is slow and unclear, and this might be attributed to government hesitation regarding the privatisation of banks.
2) The lack of confidence in the banking sector may be imputed to the policy of restrictions in the 1980s. Usually, confirming the right of individuals to deposit

and withdraw their money freely and without any restrictions is one of the elements that can help greatly in building that confidence.

3) Banking services in Libya are still lagging behind those of other countries to the being limited to basic services.

The success of the banking reforms in Libya implies that banks should independently operate under a strong leadership, i.e. without being influenced by political decisions. A carefully sequenced, coherent, and comprehensive implementation project includes creating the necessary environment for market forces to work in an efficient manner, establishing financial markets, improving the mechanism and instruments for monetary management, as well as setting up certain rules and regulations for supervision. The right sequencing with respect to time is crucial for the success of banking reforms. Finally banking reforms cannot be achieved overnight because it takes some time to realise this objectives. Malaysia is a case in point where the process of implementing reforms in a gradual manner has played a vital role in the success of the reform policies.

4.5 Government Control versus Liberalisation

It is noteworthy that the Libyan commercial banks have been a significant tool in development plans. Under governmental directives the banking system has been intended to give preference in its lending operations to certain economic sectors chosen by the government. However, both the banking laws no. 63 of 1971 and no. 1 of 1993, and other relevant Acts, have maintained that commercial banking operations must continue under governmental control. Consequently, the regulated banking sector in

Libya has been largely excluded from developing a true market and commercially oriented practices.

The government controlled commercial banking sector has led to the poor managerial autonomy of such banks. As mentioned earlier in the early 1970s, Libyan commercial banking needed government help in order to continue its progress. On the other hand, government control over the banking sector was initiated by the nationalisation process in 1970. Since then commercial banks has been operating as government agencies or, in other words, as departments of the Central Bank of Libya. The Government has used these banks as a means of channelling credit to specific economic sectors to meet the objectives of its economic plans. Thus, the main role of commercial banks has been to supply sufficient credit to certain economic sectors according to government choice, for example, to make funds available for government projects at very low interest (i.e. cheap funding). However, at this point, it is more appropriate to discuss the impact of government intervention on credit policy and subsequent non-performing loans, and its impact on the internal control systems of commercial banks in Libya.

4.5.1 Credit Policy and Government Intervention

Due to government control over the commercial banking system, the primary role of the banking sector has been to channel funds to the real sector, rendering efficiency and profitability as secondary objective. Nonetheless, banking credit has been identified as primarily credit allocations for specific sectors with special policy loans. The government of Libya, represented by the Central Bank, set up a specific loan policy in accordance with the prevailing banking laws (i.e. Banking Law no. 63 of 1971 or no. 1

of 1993) to ensure that banking credit would be in compliance with the government's economic plans.

Loan policy could be defined as bank loans allocated for specific economic activities with favourable interest and the availability of funds to support the government' objectives. Under this situation banking loans have been designed to provide subsidy for selected economic sectors (Atiya and Elgumati, 1993). However, during the period between 1970 and 1992, government intervention in all commercial banking activities was largely unsuccessful, creating a significant stock of non-performing loans.

Prior to discussing the problems created by these loans for commercial banking in Libya, the reasons for the non-performing loans and their impact on the banking activities are considered. Also possible suggest solutions that will help tackle these problems are suggested. Moreover, general issues related to banking loans are investigated.

4.5.1.1 Development of Lending Activity and Loans Classification

Loans are considered as one of the most important assets of commercial banks. The proportion of loans to the total assets of commercial banks has been around 40 to 70 per cent. The interest on these loans represents a major source of revenue for these banks.

Bank loans can be classified in a variety of ways. One method is based on the type of loan contract, i.e. whether short-, medium- or long-term. The degree of security of a loan is another means of classification; in other words whether the loan is secured or

unsecured. Nonetheless, the common classification is based on the purpose of the loan. These include commercial, consumer, real estate or industrial purposes.

Lending functions in commercial banks depend on several factors, including the character and quality of lending offices, the size of the bank, and the size of the loan portfolio (Reed et al., 1984)

It is worth mentioning that a regular and consistent classification of Libyan commercial bank loans does not exist. This may be attributed to the structural changes that have been introduced to the Libyan economy in general and to the commercial banking sector in particular. However, the Central Bank of Libya still adopts loan classification according to the purpose of use of the loan. However, the period under review involves three phases regarding the distribution of bank loans. The first phase spanned the period 1970-1978 when the state introduced the socialist system, whereby from 1980 until 1984 no specific details exist as to the distribution of bank loans. In the second phase, however, commencing in 1984 until the present time, the loan policy of the CBL has been mainly classified according to the type of economic sectors, as shown in table 4.12. In contrast, commercial banks have classified their loans based on the credit instruments used, including overdrafts and advances, bills of discount and bills negotiated (see table 4.13).

In order to clarify the development of banking credit with regard to commercial banks in Libya, measurement approaches involving loan classification and loan policies are both employed. As shown in tables 4.11, 4.12, and 4.13 a significant and rapid growth in bank loans activity has taken place. This could be attributed to the significant growth in

banking deposits in particular and the growth of the Libyan economy in general during the period 1970-2000.

As table 4.11 indicates, loan classification based on functional categorization relates to ten economic activities. However, four of these activities namely general trade, construction and mortgages on building, industry and vehicles and the transportation services absorbed nearly 71 per cent (LD 802.4 million) of the total loans provided by commercial banks by the end of 1979.

Table 4.11: Banking Loan in Economic Activities During 1970 –1979 (LD million)

Sectors	1970	1973	1975	1977	1979
General Trade	35.5	73.8	139.1	185.1	236.2
Construction Mortgages on Buildings	22.1	70.1	281.5	279.9	356.4
Vehicles and Transportation	8.1	9.7	27.0	24.7	34.2
Oil	2.3	2.0	3.0	1.7	3.6
Industry	12.0	25.9	83.0	123.4	175.5
Private Professional And individual	4.1	27.1	44.3	73.9	81.2
Agriculture	1.9	3.2	15.5	32.2	57.7
Hotels, Restaurants, and Clubs	3.4	3.2	3.1	3.1	11.1
Public Utilities	2.6	2.3	10.5	8.0	7.8
Other items	4.1	23.7	34.9	159.3	76.7
Total	**96.2**	**240.9**	**641.9**	**891.3**	**1040.6**

Source: Shanibiesh, (2000).

It is noteworthy that the intention of commercial banks to offer credit for these activities relates to the fact that the associated economic sectors have moved fundamental financial liquidity which has help them to repay their loans compared with other sectors which depend on government support.

Table 4.12: Banking Credit in Economic Sectors During 1984 –2000 (LD million)

	1984	1987	1990	1993	1997	2000
Petroleum	66.5	52.8	26.2	10.7	27.3	83.7
Electricity	30.0	38.4	35.8	79.7	212.7	324.9
Transportation and Communication	72.4	48.0	46.4	69.5	103.7	116.4
Planning Economy	-	304.0	429.7	361.0	666.5	783.4
Industry	606.1	269.8	261.5	214.9	325.3	321.6
Treasury	22.2	18.5	11.4	9.6	7.0	8.7
Health *	33.0	63.8	40.6	89.0	41.7	42.9
Agriculture	102.0	106.8	116.3	103.8	108.3	118.5
Housing and Public Utilities**	733.2	692.7	759.3	741.4	768.0	404.6
Pre. Sector (Previous)	383.4	395.9	409.4	389.2	513.9	373.3
Housing loans***	u.a	u.a	u.a	1279.5	1326.0	1468.9
Social loans	12.4	67.7	62.5	127.3	394.8	937.2
Others****	92.5	99.1	52.3	131.1	1114.1	1464.3
Total	2153.7	2157.5	2251.4	3606.7	5609.3	6448.4

Source**: C.B.L; Economic Bulletin (different issues); * including Social Security since 1998; **= Public utilities; ***; * included: Education, Creation and Vocational Training, Information and Culture, Tourism, and Justice Marine Wealth*

The second classification is based on economic sectors. This classification may emphasise the control of the government on all economic sectors, and the use of the banking sector as a means of channelling funds to finance specific pre-selected sectors.

Housing loans came top of the list of economic sectors to which credit facilities were directed during the period 1984-2000, absorbing around LD 1469 million or 26 per cent of the total credit provided to by the end of 2000. Economic planning came second, having a share of LD 783.4 million or about 14 per cent of total credit. This figure may reflect the domination of the state over the trade sector, such as in prompting commercial banks to finance the National Marketing Company. Other sectors, such as electricity, industry, and public utilities, received only LD 1051.1 million or an equivalent of 19 per cent of total credit during 1984-2000. This is mainly ascribed to the fact that the government directly spends significant funds on those sectors. Transportation and communication, petroleum, and agriculture came at the bottom of the list, with a collective share of only LD 318.6 million during the period under review.

Table 4.13: Growth of Banking Loan (LD in million)

Years	Overdraft and Advances	Bills discounted and Negotiated	Other Loans	Total
1970	85.3	8.9	1.9	96.2
1975	599.2	25.7	16.9	641.9
1980	1298.0	14.8	17.3	1321.2
1985	1942.6	5.8	84.4	2032.9
1990	3004.8	31.7	16.8	3053.3
1995	4162.8	72.9	45.8	4281.5
2000	5571.3	11.9	0.8	5584.0

Source: *Central Bank of Libya; Economic Bulletin (different issues) from 1970 to 2000*

Table 4.13 shows that total bank loans increased from LD 96.2 million in 1970 to LD 5.5 billion in 2000, with an average annual growth of 43.5 per cent. Total overdrafts and advances represented 89 per cent of total loans in 1970, rising to nearly 99 per cent in 2000. This increase in overdrafts may be due to the socialist policies introduced during the period from 1978 until 1989. Before that time bank loans mainly concentrated on financing the trade sector through overdrafts or by documentary credit. Consequently, the ratios of bills both discounted and negotiated to total loans has been reduced to around 1 per cent during the last five years of the period under review. The reason for this could be government control on marketing channels and the commercial sector in the aftermath of the socialist policies and the subsequent abolition of the private sector in 1978 (Attia and ElGhumati, 1993).

Loan policies may be defined as a group of principles and basics, set up by senior management as guidelines for different administration levels regarding the implementation of the programmes and processes of loan policy (ibid, 1993**).** These policies are described as having explicit lending policies to establish the direction and use of the funds from stockholders, depositors, and others; to control the composition

and size of the loan portfolio and to determine the general circumstances appropriate to making loans. Banks should have a written loan policy to provide guidance for lending offices and thereby establish a greater degree of uniformity in lending practice. A loan policy is usually affected by many factors, including bank capital, risk management, profitability, the fluctuation and type of deposits, and general economic conditions. These factors need to be considered seriously when loan policy is to be drawn up (Reed et al., 1984).

4.5.1.2 The Main Features of Loan Policy of Commercial Banks in Libya

The data associated with commercial banks in Libya published by the CBL outlines the main features of the loan policy of commercial banks as follows:

1) In general, commercial banks are state-owned banks controlled by the Central Bank where this situation has placed commercial banks in a position of monopoly and resulting in poor performance.

In Practice, the Central Bank of Libya has continued to intervene in the loan activities of commercial banks in several ways, including the determination of the size and types of loan, as well as deciding the kind of guarantees and collaterals. For instance, the Central Bank of Libya determined a ratio of real estate loans given by commercial banks to be between 5 % and 7.5 % in 1989, amending this in 1990 from 7.5% to 15% of total deposits. Furthermore, Article 34 in Banking Law no. 1 of 1993 gives the Central Bank a sole right to control the banking credit by determining the percentage of each type of credit.

2) In general commercial banks in Libya have no regular loan policy and follow the directives of the Central Bank in this respect. However, under these

circumstances the senior management of commercial banks have adopted conservative loan policies. The decision of the Central Bank to stop credit grants to the private sector from 1980 to 1990 thus added insult to injury.

3) Credit to the private sector is used as a measure for judging performance as well as the quality of services provided by the bank. This judgment is usually made by comparing private sector credit to the total credit. A high ratio would usually indicate good performance and proper use of resources, whereas a low ratio would indicate poor performance and use the abuse of resources.

Table 4.13A shows that the average loans to the private sector represented only 6% during the period 1990 to 2000. This ratio would reflect the fact that the banking sector was virtually incapable of providing credit to the private sector. Moreover, according to Livine (1997), this ratio was very low compared to the ratio for other developing countries (37%). Also, it is noteworthy that table 4.13.A, suggests that banking reforms have had little impact in increasing credit allocations.

Table 4.13A: Credit for Private Sector as Percentage of Total Credit

Years	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
PC/TC	0.13	0.13	0.09	0.09	0.10	0.10	0.08	0.09	0.06	0.05	0.06

Sources: Fayad, (2001)

PC = Private credit, TC = Total Credit

Economic conditions have adversely affected commercial banking performance. After nationalisation in 1971, commercial banks came under direct state control (i.e. the General Peoples' Committee and the Central Bank). For instance, in June 1980 the General Peoples' Committee issued a decree offering specific loans to underperforming government firms. However, that decree proved to be unfortunate with regard to its

adverse effects on the financial status of banks and the non-performing loans it created for the banking sector. The domination of the state and its direct interference has greatly affected the commercial banking sector. Furthermore, the government liquidated most of these companies before making any arrangements to sort out credit with respect to commercial banks loans. This may confirm the idea that government intervention has seriously affected the banking sector.

4.5.1.3 Non-performing Loans: Reasons, Results and Impact on Bank Credit

As mentioned earlier in this chapter, significant changes have been introduced to banking loans. Also, the rate of growth of these loans has been unacceptable compared to rates in other Arab countries. For instance, the percentage of credit to GDP in Libya rose from 13.1 per cent in 1975 to 24.2 per cent in 1982, while the same ratio in the average Arab country stood at 26 and 37 per cent in 1975 and 1982 respectively. Moreover, the proportion of credit to deposits in Libya increased from 60 per cent to 72 per cent between 1987 and 1989 as shown in 4.9. The domination of the state over the banking sector has affected banking performance leading to many problems such as poor performance and the increases in the number of bad loans.

4.5.1.3.1 Loan Problems and their Reasons

Bad loans are considered as one of the most severe problems that Libyan commercial banking has been facing. In the case of Libya, non-performing loans in bank portfolios could not be identified easily because of inadequate accounting standards, the absence of auditing and the absence of guidelines from the Central Bank. The ratio of bad loans at

times reached 45% of total credit in some commercial banks (Bel- kaer, 1993). The main reasons for this may be attributed to both external and internal factors.

The external factors include the nature of ownership of commercial banks coupled with the increasing levels of state intervention in banking activities. Another external factor is the nature of the economic system, which in 1978 underwent radical changes leading to the introduction of the socialist regime. Under this regime, however, the state had ultimate control over all economic activities. Also, under these circumstances, banks became less concerned about evaluating the credit conditions of their borrowers, and therefore no risk management techniques were applied.

In fact government intervention in banking sector activities took place through the Central Bank and other governmental organisations. These organisations usually issued directives and instructions that influenced banking credit policies for the purpose of sponsoring some projects already deemed to be under-performing. However, loans given by Libyan commercial banks to stock companies and other governmental organisations were guaranteed by the Treasury, which then disavowed its commitments, leaving these banks to sort out the problems on their own.

On the other hand, internal factors are mainly associated with the poor performance of internal control systems. These factors include inappropriate banking principles with regard to the granting and controlling of credit, lack of feasibility studies, insufficient collateral, breaches of the regulation and banking processes that organise banking credit, and inadequate procedures to monitor customer accounts.

4.5.1.3.2 Size of Non-performing Loans in Libyan Commercial Banks

The initial appearance of significant non-performing loans in the Libyan commercial banking system began in the early 1980s. During 1992, the balance of non-performing loans in commercial banking witnessed a significant growth that exceeded LD 1.5 billion, or about 50 per cent of total credit in some commercial banks (CBL, 1992). Due to the severe problems of 1995, the Central Bank for the first time issued a circular concerning the method of loan classification, determining loans as to type and standard. An amendment of loan classification was introduced in 1997, reclassifying them into two categories. The first category included standard facilities i.e. perfect loans, which imply a 1% minimum allowance ratio given that any allowance in excess of that ratio must win the approval of the bank's General Assembly. The second category included irregular facilities, which were classified into three types, i.e. substandard, doubtful, and bad loans, with minimum allowance ratios of 10, 30, and 60 per cent respectively. However, in the meantime, in case the minimum ratio was not enough, commercial banks could exceed that ratio after consultation with the General Assembly (CBL, 1997).

4.5.1.3.3 The Negative Impacts of Non-performing Loans

As a result of the significant growth of non-performing loans, Libyan commercial banks increased their loan allowance (for doubtful loans) by following the circulars no. 20 of 1995 and no. 5 of 1997 containing guidelines from the Central Bank.

Table 4.14 below shows the growth of doubtful allowances and their impact on banking performance. The phenomenon of the growth provision of doubtful loans emerged in the

mid 1980s. However, since clear loan classification by the CBL did not exist prior to 1995, this led commercial banks to increase their provision of non-performing loans depending on the circumstances of the bank, the size of the non-performing loans, and management policy.

As previously mentioned the first circular from the Central Bank of Libya concerning the regulation of loan classification was issued in 1995 and amended in 1997. Table 4.14 shows the growth of provision of non-performing loans and its impact on commercial bank performance. The credit facilities in commercial banking increased during the period under review, but it should be noted that the percentage of net income to assets and to total credit has decreased (by more than 50 per cent in some banks) from 1.3 per cent in 1975 to 0.5 per cent in 1998.

Table 4.14: The Growth of Allowances Loans: in LD million

Years	Total of Credit 1	Total of Assets 2	Net of Income 3	Allowances of Loans	%of Allowances to Credit	% of Net Income to Credit	%of Income to Assets
1975	641.9	923.0	12.0	6.5	1%	2%	1.3%
1979	1040.4	2054.3	24.9	37.5	4%	2.4%	1.2%
1983	2208.1	3873.5	21.0	193.4	9%	0.9%	0.5%
1987	2157.5	5246.5	36.9	435.8	20%	2%	0.7%
1991	3152.3	6287.7	23.0	560.0	18%	0.7%	0.4%
1995	3038.2	8931.1	36.5	642.2	21.1%	0.8%	0.4%
1999	3746.7	10123.1	53.4	880.5	23.5%	1%	0.5%

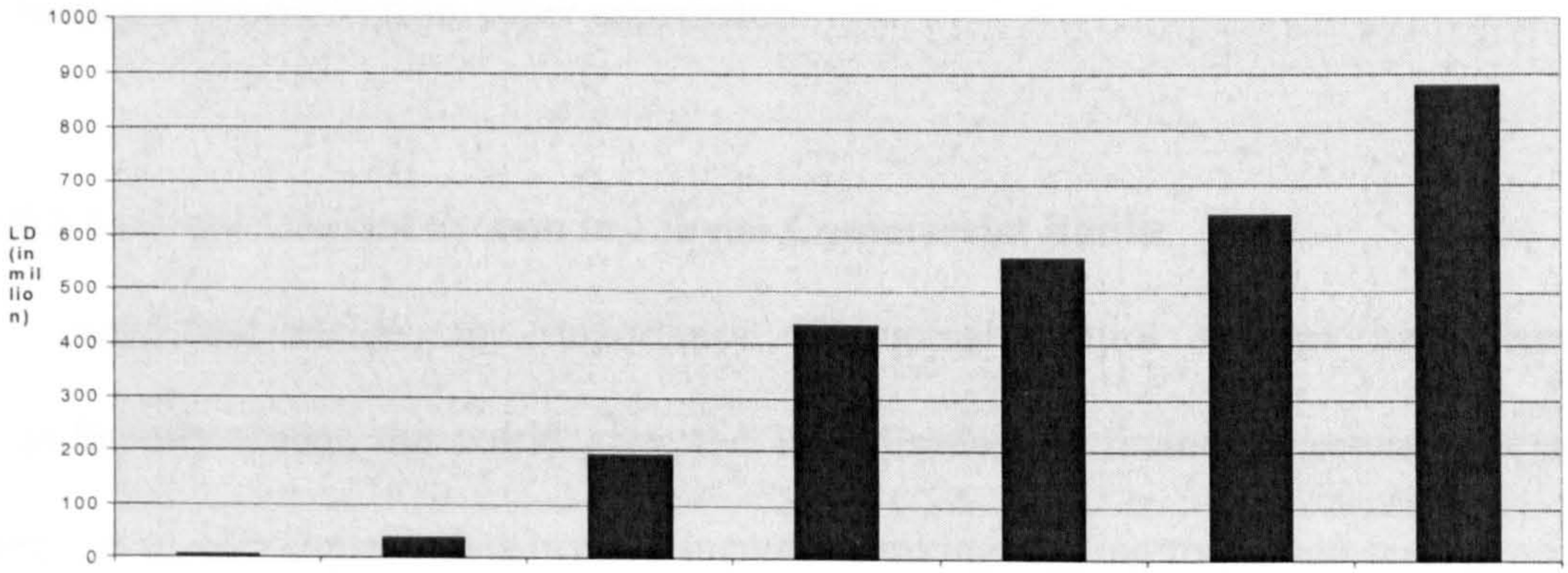
***Source**: Annual Reports of Commercial Banks from 1975-1999*

Furthermore, table 4.14 and figure 4.4 show the enormous growth of provision of non-performing loans in Libyan commercial banks since1975 until 1998. This rose from LD 6.5 million in 1975 to LD 193.4 million in 1983 and then jumped to LD 880.5 million in 1998.

Moreover, the ratio of loan provision to the total credit increased from 1 per cent in 1975 to 9 per cent in 1983. It stood at 20 per cent in 1987 and dropped to 18 per cent in 1991 before rising to around 21.1 per cent and 23.5 per cent in 1995 and 1999 respectively. It is noteworthy that the fall in the ratio of net income to total assets indicates a drop in the profitability of commercial banks, suggesting that it is one of the main impacts of the growth of non-performing loans on the performance of banks in Libya.

However, table 4.14 also shows that the provision of doubtful loans has increased and as a percentage of total credit if reached over 45 per cent, leading to a series of problems. The growth of non-performing loans has also affected bank profitability in two ways; firstly by deduction of the annual provision of loans; and secondly by the exclusion of added interest of loans to the total revenue and using the interest-in-suspense accounts.

Figure 4.4: Growth of Provision of Non-performing Loans in Libyan Commercial Banks



The example shown below helps to explain this impact on bank profitability. Bank A measured its provision of loans at LD 5 million (discount from loss and profit statement). The amount of interest-in-suspense of these loans was LD 13 million. In the

same year the net profits made by bank A were LD 20 million. Assuming that the loans of bank A were performing loans, therefore their profit would have increased to LD 38 million instead of LD 20 million.

The problem is that non-performing loans might tend to increase if the state is unwilling or unable to intervene to resolve this issue. Furthermore, most of these loans were granted to governmental firms by government directives and/or Treasury guarantees. The other impact on banking performance is that it may affect banking liquidity, owing to the blocking of credit accounts. This might make it incumbent on banks to liquidate their investments. This situation could create instability within commercial banks and would tend to encourage them to adopt conservative policies, which would also affect bank profitability. In brief, this further confirms the assumption that the performance of commercial banks in Libya has become frustrated by the intensive control and intervention of the government, whereby the initial reforms stage was not sufficient. So this may accelerate a need for policy reform by liberating the banking sector and allowing it to benefit from other experience.

4.5.2 Internal Control System in Libyan Commercial Banks

As mentioned earlier, the importance of internal control systems has increased significantly across the world after the liberalisation of financial sectors. The main purpose of liberalisation has been to increase banking lending to private sectors, reduce risk taking, and reduce government intervention.

For the safety and soundness of banking operations, strong internal control systems have become an important tool of the banking industry. The Basle Committee (1998) highlighted that strong internal control systems can ensure that the objectives of banking institutions will be met and that they comply with law and policy, and to ensuring that procedures of internal control will lower the risk of uncertainty and the loss of bank assets.

However, establishing a sound and appropriate internal control system in banking organisations is the responsibility of the regulatory and supervisory boards of directors, and the senior management of commercial banks. The function of the Central Bank in regulating and controlling the banking sector could provide an appropriate framework for internal control systems to secure the soundness of bank operations (GAO, 1999).

The Board of Directors and senior management in commercial banks have the duty of establishing appropriate and sound internal control systems in their banks. Consequently the Board of Directors should make sure that top management have taken the necessary steps to introduce and maintain a strong internal control system. Nonetheless in order to achieve this, the Board of Directors needs to allow full managerial autonomy, without which its capabilities to lead the bank will be restricted. Therefore, the formation of the Board of Directors will play an important role in the assessment of banks regarding their aims. However, it is noteworthy that the non-executive members of the Board of Directors must be fewer than half of the total members, as a precautionary measure to prevent any attempts from the executive directors to dominate the board.

Senior management also has responsibility regarding the internal control systems. This responsibility is usually associated with the implementation of the directives of the Board of Directors. Moreover, the senior management has the duty of establishing, monitoring and strengthening the internal audit functions of the bank organisation.

The Central Bank has a sole right to appoint the Board of Directors for commercial banks in Libya. Article 54 of the doomed banking Act no. 63 of 1971 gave the Central Bank the authority to appoint Boards of Directors, given the fact that both the chairman of the board and the general manager would be delegated as representatives of the Central Bank. Furthermore, the Central Bank would be represented in the General Assembly of commercial banking. However, this situation would undermine the independence of the management of commercial banks. In addition, members of the Board of Directors delegated by the Central Bank still keep their posts as employees of the latter. Hence, it can be safely maintained that the Central Bank of Libya has been fully involved in the management of commercial banks rather than simply regulating these banks (i.e. through outlining the general framework regarding issues such as internal control systems, credit policy, loan classification, etc).

The domination of the Central Bank over commercial banks has created many problems, such as a lack of sound internal control systems which have adversely affected banking performance through fraud, waste of resources, mismanagement, and abuse (this is confirmed by the questionnaire results in chapter 6). The liability of the Board of Directors and senior management regarding internal control systems lies with establishing the internal audit functions. From reviewing the annual reports of

commercial banks in Libya, it is noticeable that the role of the internal audit function at the departmental, divisional and office levels is confined to reviewing financial operations only.

The functions of internal control systems with respect to commercial banks in Libya can be summarised as follows:

A) Both the processes of appointing the board of directors and bank ownership have been negatively influenced the effectiveness of the internal control systems, restricting their efficiency in the prevention and reduction of errors, rather than assisting these organisations in determining the various risks that will make them stop short of meeting their objectives.

B) In the Libyan commercial banking system, the Board of Directors consists of five members, including the president of the Board who is also the general manager; the vice-president who is also the deputy-general manager; and three other non-executive members. The involvement of the chairman of the Board of Directors in the daily routine administrative activities by virtue of his position as general manger will greatly affect his performance in leading and masterminding banking policies. However, this has been confirmed by a study conducted by Pi and Timme (1993) who examined the impact of disjunction between ownership and control in US commercial banks. They found that banks where the positions of chairman of the board and chief executive officer (general manager) were held by the same person were generally less efficient.

C) The different styles and positions of authorities that are already responsible for audit functions (i.e. Inspection Department, Department of Audit, Internal Audit Office, Division of Internal Audit, and so on) reflect the weak role of the Central Bank in establishing and creating the frameworks of internal control in regulating and guiding commercial banks (for more details see chapter 6).

D) The limitations of internal audit in the Libyan commercial banks in reviewing their financial operation are responsible for various problems in banks, such as the growth of non-performing loans.

E) Senior management still fail to ensure adequate internal auditing in their banks, reflected by inadequate levels of staffing. An independent study found that 27 per cent of internal audit department staff in Libyan commercial banks are incompetent in running their department (the present study suggests that 50 per cent of internal auditors are incapable of carrying out their duties).

In several countries a strong internal control system has been used as a firewall for banks against government intervention. In Libya, however, the lack or absence of internal control may prompt the government to intervene and influence the banking operations. Therefore it can be argued that the Libyan commercial banking system has been adversely affected by government intervention. This situation had led to unreliable credit policy, so that the banks would offer credit according to CBL directives, which has resulted in a high level of non-performing loans. Consequently, this has led to a decline of banking performance. In addition, during that period 1980s and 1990s the commercial

banking appeared to function as an official department of the CBL, hence also suffering from weak internal control systems. This conclusion may provide an initial answer to the second question of this study concerning the impact of initial reform policies on internal control systems in Libyan commercial banks.

4.6 Summary

The Libyan commercial banks have witnessed a significant transformation during the period under review. Despite the growth of the banking sector, its performance is still unacceptable compared to other developing countries. Until the year 2000, the commercial banking system in Libya consisted of five state-owned banks with 282 branches and agencies mainly located in the main cities.

After nationalisation and the Libyanisation of the banking sector, the Central Bank of Libya assumed control over all banking activities. It fully owned three commercial banks and at least 51 per cent of the shares of the remaining banks. The Central Bank had the power to control and regulate the banking industry in the country. In order to ensure its direct control it would issued directives and used moral persuasion as effective monetary instruments to influence the banking sector.

However, by the end of 1988, the Libyan government took a step towards the liberalisation of the economy, paying special attention to the privatisation of commercial banks. Eventually a new banking law was issued, which allowed private banking leading to the establishment of 47 private banks including the Bank of Commerce and Development. Furthermore, the government introduced some reforms to the exchange

rate of the national currency against foreign currencies, so that by the end of 2002 only one rate would exist.

However, the commercial banking sector has suffered from massive government intervention over the last three decades, leading to instability in banking performance, poor profitability and significant increases in non-performing loans (i.e. of over LD one billion at the end of 1995). Yet, during 1970-2001, the credit policy of commercial banks in Libya was directed towards granting loans towards pre-selected state projects; a situation that led to the increase in the size of non-performing loans.

CHAPTER FIVE

METHODOLOGICAL ISSUES AND BANKING EFFICIENCY

5.1 INTRODUCTION

To achieve the objectives of this study, appropriate methods were followed. This chapter examines the design and methodology of the study, justifying approach used. A brief definition of banking efficiency and its measurement is provided, and sources of data and analytical methods are discussed.

5.2 Research Methodology

Due to the nature of this study, both quantitative and qualitative approaches are used. The methodology that used in this study is mainly two main aspects:

1) The theoretical perspective deals with several matters as follows:

   i) Material on banking institutions in general and the commercial banks in particular was collected from several sources, including publications from both the Central Bank of Libya as well as reports from the commercial banks.

   ii) The available literature on the subject was thoroughly reviewed.

   iii) The available public and private sources of statistical data were exploited including annual reports and monthly bulletins in order to analyse the theoretical aspects of commercial banking

2) The empirical research consisted of the following:

i) A descriptive empirical analysis investigated the main issues using a critical, theoretical and statistical approach to:

a. Examining the main features of the Libyan economy in general and of the financial and the banking sector in particular.

b. Examining the growth of commercial banking by determining the relationship between financial and economic ratios, and also by comparing the Libyan banking system and systems in other developing countries.

ii) The banking operations and investment activities of Libyan commercial banks were analysed, which also entailed the evaluation of their performance, leading to:

a. A questionnaire design to evaluate the effectiveness of the internal control systems of the Libyan commercial banking sector;

b. Establishing the DEA model in testing banking efficiency and the measurement of the features of quality in the Libyan banking sector in conjunction with financial ratios (CAMEL ratings).

5.2.1 Questionnaire Design

The questionnaire was designed to act as a supplement to the data already published and used in this study. As managerial behaviour and conduct are considered as qualitative variables, which are not offered, in published documents, the aim of the questionnaire was to discover the potential internal control systems and well be the incorporation of such information in order to establish a reliable measurement of efficiency.

The questionnaire consisted of five parts aiming to evaluate the potential of internal control systems in Libyan commercial banking. The questionnaire design process started at the middle of April 2003. To design an appropriate and effective questionnaire, a pilot study was conducted in both British and Libyan banks.

A first draft of the questionnaire was reviewed by several experts and individuals experienced questionnaire design. A series of amendments was made following a series of meetings with these experts and the supervisor.

A second draft of the questionnaire was distributed to a British bank (HSBC), as a pilot study. At the same time, a sample of the questionnaire was sent to two Libyan commercial banks (Umma Bank and Sahara Bank). The idea here was to determine the suitability of the questionnaire design and its content for use with the audit department of banks.

The third stage was to amend the questionnaire after receiving feedback from both the Libyan and British banks, and discussion with the supervisor. Thereafter the final version of the questionnaires was prepared and sent to Libyan commercial banks.

5.2.2 Banking Efficiency as a Basis for Establishing DEA Technique

The changes in regulatory frameworks, advancements in technology and market enlargements have all imposed increasing pressure on the banking industry, making greater efficiency imperative within a deregulated industry (Meryem et al., 2001). Therefore the primary objective of measuring and evaluating the operating efficiency of banks is to improve performance. Furthermore, the increased efficiency of financial

institutions, and in particular of banking firms, could make a significant contribution towards the improvement of performance and quality of services as well as increasing the soundness of the financial sector.

Moreover, the methods of evaluation of performance need to be linked to decision models in order to be able to associate the results obtained with decisions (Oral, 1986). This would require analytical techniques that would provide means of identifying the relative strengths and weaknesses of banks. The latter might be available from accounting and financial ratios (Oral and Yolalan, 1990).

The use of financial ratios in measuring banking performance is becoming a common practice, and yet Yeh (1996) has noticed that the major shortcoming of this approach is its reliance on benchmark ratios. These benchmarks could be arbitrary, a fact that might be misleading and might cause confusion to analysts. Sherman and Gold (1985) note that ratios do not capture long-term performance, and aggregate many aspects of performance such as operations marketing, and financing. In this regard Yue (1992) makes two important points. The first is that any single ratio is inadequate in the context of multiple inputs and outputs related to different activities, resources, and environmental factors. Secondly, a single ratio cannot encapsulate all the relevant inputs and outputs into a single measure of efficiency (ibid, 1992).

However, in recent years, there has been a trend towards measuring bank performance using one of the frontier analysis methods. In frontier analysis, the institutions that

perform better relative to a particular standard are separated from those that perform poorly by using a non-parametric parametric measurement (Sathye, 2001).

In fact, DEA measures and financial ratios are complementary to one another, in the sense that each will provide a different evaluation and thus producing a more complete overall picture regarding institutional performance. The financial ratio attempts to measure financial performance, whereas the DEA measures are designed to evaluate operational performance (Oral et al., 1992).

5.2.2.1 The Concept of Banking Efficiency

In the past twenty years the banking industry had faced growing competition from other financial services. Moreover, the banking industry has undergone substantial deregulation and changes. The impact of competitive and regulatory changes on banks can be judged by gross measures of performance such as profitability and failure rate (Wheelock and Wilson, 1995).

Yet, the whole idea of defining performance is to capture the ability of a firm to transform its resources to generate outcomes. The performance of a bank is generally conceptualised as the extent to which the bank is able to utilise its resources to generate business transactions. Therefore the efficiency of performance is measured by the ratio of outputs to inputs, where a bigger value of this ratio would indicate better performance (Mukherjee, et al., 2002).

According to Wheelock and Wilson (1995):

> *" inefficiency implies that resources are wasted, that is that firms are producing less than the feasible level of output from the resources employed, or are using*

relatively costly combinations of resources to produce a particular mix of products or services".

The need to measure the efficiency of the banking sector is important in many ways, including academic and policy making purposes either within the bank or elsewhere. Thus, the prime goal of the policy maker/manager is to create policies that improve the efficiency of commercial banks.

The concept of efficiency offers different meanings amongst economists and banking managers. For economists, the economic efficiency of institutions consists of two components: price efficiency (allocative efficiency), and technical efficiency. Consequently, the former measures the institution's success in choosing an optimal set of inputs, whilst the latter measures success in producing the maximum output from a given input. Thus, the economic efficiency might be interpreted as success when the planned objectives were achieved (Farrell, 1957). To this end, efficiency in a financial institution should imply "improved profitability, larger amounts of funds intermediated, better prices and quality services for customers, and greater safety and soundness of savings" (Berger et al., 1993).

Nonetheless, with regard to banking efficiency, several studies have been preoccupied with the estimation and evaluation of banking efficiency within the framework of their operating cost functions. Recent studies, which are considered to offer the most comprehensive definition of economic efficiency in banks, recognise that efficiency in banking is a combination of both technical and production efficiency (Richard and Villanueva, 1980). However, Richard and Villanueva (1980) define the component of banking efficiency as:

"technical efficiency relates to banks or groups of banks which provide different quantities of services from an identical set of measured endowments of productive inputs. Price or allocate efficiency recognises that different banks successes in varying degrees in maximizing profits i.e. in equating the value of the marginal product of each variable input to its price".

The performance of organisation is often described in terms of their efficiency in using the available resources. Yet, efficiency in commercial banking is important for a variety of reasons. Firstly, efficiency measures are indicators of success, by which the performance of individual banks, and the industry as a whole, can be measured. Several studies have found that banks would be more successful in maintaining their business if they operated efficiently. The second reason to investigate the efficiency of commercial banking is the potential impact of government policies on efficiency by measuring the impact of regulatory changes on the efficiency of commercial banks (Wheelock and Wilson, 1995). Thirdly, a measure of relative efficiency provides a good indicator of the success of a bank in competitive markets. In addition, it also reflects the potentiality for the failure of banking institutions (Saha and Ravisankar, 2000; Berger et al., 1993).

Berger et al (1993) found that, during the 1980s, high-cost banks experienced a high rate of failure compared to more efficient banks. Wheelock and Wilson (1995) found that, the less technically efficient a bank was, the greater its potential for failure. Finally, this technique will also help a bank in recognising its areas of inefficiency so as to devise suitable strategies to improve its relative position in the market. It can also provide a framework to regulators to assess the health of individual banks and to work out appropriate intervention to prevent systemic failures (Saha and Ravisankar, 2000).

Currently, financial ratios are often used to measure the overall financial soundness of a bank and the quality of its management (Yue, 1992). Most bank regulators use financial ratios to help them evaluate bank performances as part of the CAMEL system. However, even though financial ratios offer useful information, they are prone to certain drawback as mentioned earlier in this chapter.

Due to the changing nature of the banking industry, which has made such evaluation even more difficult, there is a need for more flexible and alternative forms of financial analysis. Many proposals have used a variety of techniques and samples to measure banking efficiency. The most common techniques include:

1) The stochastic cost frontier approach

2) The thick frontier approach

3) The distribution-free approach

4) The Data Envelopment Analysis approach (Wheelock and Wilson, 1995).

Further discussion concerning these approaches is given below.

5.2.2.2 Data Envelopment Analysis Methodology

Since Data Envelopment Analysis (DEA) was first introduced by Charnes, Cooper, and Rhodes in 1978, it has been extensively applied to many areas including education, hospitals, markets, non-profit organisations, public sector services, universities, the military, and many other areas listed in the bibliography by Tavares, (2002). The extent and variety of these studies show that DEA has emerged as a vital and useful method for assessing the performance of decision-making units (DMUs), providing a relative rating of their performance efficiency.

Data Envelopment Analysis is a non-parametric methodology in which linear programming is used to measure the distance of individual banks from the efficient or best practice frontier (Wheelock, and Wilson, 1995). According to Berg et al., (1993) DEA is a linear programming technique for constructing a non-parametric, piecewise linear envelope for a set of observed outputs and inputs data.

DEA computes a bank's efficiency in transforming inputs to outputs relative to its peers (Siems, 1992). In other words, DEA is a linear programming technique that produces best practices frontier composed of efficient decision making units (DMUs) (Stayhe, 2000).

DEA calculates the relative efficiency of each DMU relative to other DMUs by using the actual observed values for inputs and outputs of each DMU. The DMUs could be banks or branches of banks. The DEA measure compares each of the banks/ branches in the sample, to determine which of the DMUs in the sample are efficient and which are not. The efficiency of DMU is measured relative to all other DMUs, with the simple restriction that all DMUs fall on or below the efficiency frontier (Lawrence and Robert, 1990). The most efficient units are rated with a score of one, while the less efficient institutions score between zero and one. However, DEA was designed specifically to measure relative efficiencies using multiple inputs and outputs with no prior information regarding which inputs and outputs are most important in determining an efficiency score. This analysis is concerned with understanding how each DMU is performing relative to others, the causes of inefficiency, and suggesting ways to raise efficiency and improve the performance of a DMU. In this respect, the focus of the methodology

should be on each individual DMU rather than on averages. The relative efficiency of a bank is defined as the ratio of its total weighted outputs to its total weighted inputs (Siems, 1992).

Table 5.1: Summary of Selected of Previous Studies of commercial bank efficiency

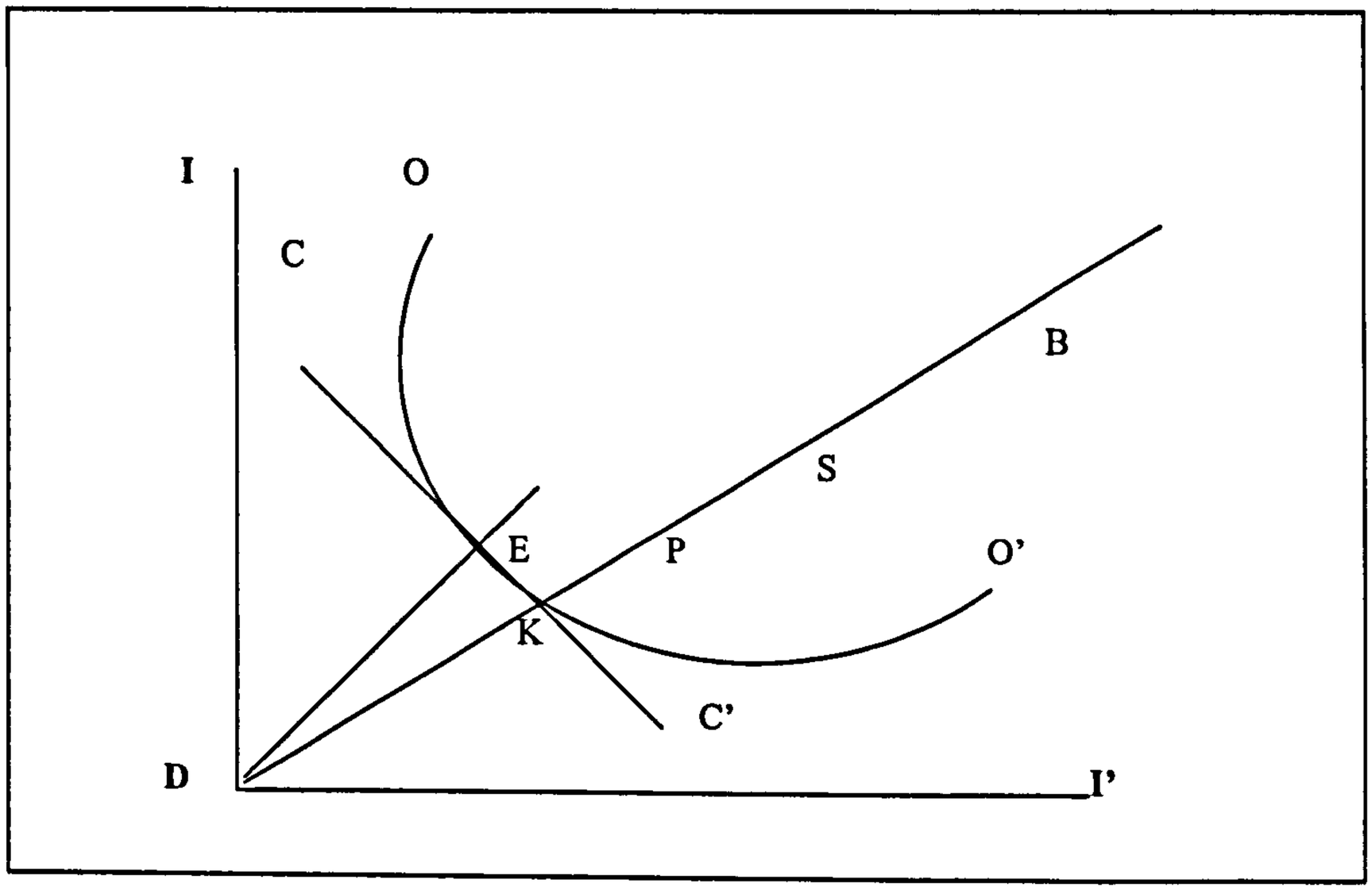
Author,Technique, Approach	*Inputs*	*Outputs*	*Sample*
Yue, 1992 ***DEA*** ***Intermediation***	Interest expenses Non-interest expenses, non-transaction deposits	Interest income, non-interest income, Total loans	60 of the largest Missouri commercial banks 1984
Yeh, 1996 ***DEA*** ***Financial ratio* and intermediation***	Interest expenses Non-interest expenses, total deposits	Interest income, non-interest income, Total loans	6 commercial banks in Twain from 1981-1989
Drake, 1997 ***DEA*** ***Intermediation and production***	Fixed assets, number of employment, and deposits	Loans, liquid assets, investments deposits, other income	9 banks in UK 1984-1995
Makhamreh, 2000 ***Regression*** ***Intermediation and Financial ratio*****	(Dependent variable) ROA, Earnings per shares, stock prices, stock value	(Independent Variable) Total assets, debt equity ratio, GDP, No. Of shares, percentage of foreign ownership, capital labor ratio, retained earnings…	19 Jordanian banks 1989-1996
Hardy and Emillia, 2001 ***Correlation*** ***Cost function and financial ratio***	Revenue, profit and cost See the Article	Loan and advances, holding government securities and bills, cash balance with othe banks, other investment	Pakistan banking sector 1981-1997
Drake & Hall, 2002 ***DEA,*** ***Intermediation***	General administration expenses, fixed assets, deposits	Total loans, bills discounted, liquid assets and other invest in securities, other income	149 Japanese banks 1997
Tsionas et al, 2003 ***DEA*** ***Intermediation***	Labor, physical capital, deposits	Loans, investments, and liquid assets.	Greek commercial banking sector 1993-1998

DEA has been previously applied to the national banking industries of different countries by Sherman and Gold (1985), Ferrier and Lovell (1990), Yue (1992), Berg et

al (1993), Wheelock and Wilson (1995), Yeh (1996), Hardy and di Patti (2001), Drake and Hall (2002), and Tsionas et al (2003) (see table (5.1).

DEA represents a mathematical programming methodology that can be applied to assess the efficiency of a variety of institutions using a variety of data. Farrell used the efficiency concept for the first time in 1957. To clarify the concept of efficiency, it is assumed that a bank uses two input variables, I, and I' to produce a single product O, give the relative input price according to the frontier F, where F maps (I, I') into F (I, I') = O. This case is illustrated in figure 5.1. A bank which operates at point E is productively (or overall) efficient in choosing a cost minimising production process, given the relative input prices that are represented by the slope CC'.

Figure 5.1: Farrell Efficiency



Overall efficiency can be decomposed into two components: technical efficiency and allocative efficiency. This study does not consider allocative efficiency, hence, concentrating on technical, pure technical, and scale efficiency.

Technical efficiency is the ability of banks to use their resources efficiently and use the least amount of inputs matching to a given set of output levels. Alloactive efficiency results from employing inputs in the wrong (non-optimal) proportions and indicates the amount by which the actual cost deviates from the minimum cost (Tsionas et al., (2003).

A DMU at P is alloactively inefficient in choosing an inappropriate input mix, while at B is both technically inefficient in the ratio DP/DB, and allocatively inefficient in the ratio DK/DP, because it requires an excessive amount of both inputs, *I*, compared with a bank at P producing the same level of output, O.

However, a bank using more of both inputs than the combination represented by P, may experience increasing or decreasing returns to scale. However, in general, the technical efficiency ratio DP/DS may be further decomposed into scale efficiency, DP/DS and pure technical efficiency DS/DB with respect to point P, as shown in figure 5.1 representing the case of constant returns to scale (Drake and Hall, 2002).

DEA provides an alternative to extracting information from a set of observations. It is a procedure for relative efficiency measurement, which incorporates multiple inputs and outputs. It identifies the frontier by creating a piecewise linear surface which rests on top of observations.

As mentioned earlier, efficiency concept was first proposed by Farrell in (1957) as in the following relationship:

Efficiency = weighted sum of outputs / weighted sum of inputs

which can be written as:

$$\text{Efficiency of unit J} = \frac{U1Y1j + U2Y2j + ...}{V1X1j + V2X2j + ...} \leq 1$$

Where U1 = weight given to output 1, Y1j = amount of input 1 from unit J,

V1= weight given to input 1, X1j = amount of output 1 from unit J.

Note that efficiency is usually in the range between 0 and 1.

To avoid the problem concerning a common set of weights, an alternative model has been developed by Charnes, Cooper, and Rhodes (1978). They adopted different weights for both inputs and outputs. Consider in N units each is called a Decision Making Unit (DMU) that converts I inputs into J outputs, where I can be equal or smaller than J.

To measure the efficiency of this converting process for the DMU, Charnes et al (1978) used the maximum of ratio of weight outputs to weight inputs for that unit.

$$\textbf{Max } e^o = \sum_{j=1}^{J} U_j^0 Y_j^0 \Big/ \sum_{i=1}^{I} V_i^0 X_i^0 \qquad (1)$$

Subject to:

$$\sum_{j=1}^{J} U_j^0 Y_j^n \Big/ \sum_{i=1}^{I} Vi^0 X_i^n \leq 1 \ ,$$

n= 1,.....N

$V_i^0, U_j^0 \geq 0$ i= 1,.....I; j= 1,.....J

where Y_j^n, X_i^n are positions of known outputs and inputs of nth DMU and V_i^0, U_j^0 are the variable weights to be determined by solving problem (1). Then a value of h_0 is obtained, followed by efficiency of DMU^0 , and its weights. If h_0 =1 the DMU^0 is efficient, otherwise, it is inefficient.

In order to avoid problem (1) Charnes et al, (1978) transformed the above non-linear programming problem into a linear one as follows:

$$\text{Max } h_0 = \sum_{j=1}^{J} U_j^0 Y_j^0 \qquad (2)$$

Subject to:

$$\sum_{i=1}^{I} V_i^0 X_i^0 = 1,$$

$$\sum_{j=1}^{J} U_j^0 Y_j^n - \sum_{i=1}^{I} V_i^0 X_i^n \le 0,$$

n =1,.....N

$U_j^0, V_i^0 \ge \varepsilon$, i=1,.....I

Given that the number of constraint equations is larger than the number of variables in the primal linear programming problem, we may turn this problem into a dual problem (more details are given in appendix two).

For the purpose of this study, DEA efficiency is defined as an intermediary between savers and borrowers. According to DEA efficiency, the scores derived in this study can

be divided into three categories i.e. high, medium, and low DEA for financial peer group analysis.

5.2.2.3 The Main Approaches to DEA

Over the past two decades, substantial research by financial economists in government and academia from all over the world has gone into evaluating the efficiency of financial institutions. Berger and Humphrey (1997) have conducted 130 studies applying frontier efficiency analysis to financial institutions in 21 countries, and 116 of these studies were published during the period 1992 - 97.

At least four-frontier analysis methodologies used to compute financial institution efficiency, exist; and there is no agreement among researchers as to which of these methods is the best. The main difference between these approaches has been the way in which they handle random errors and their assumptions regarding the shape of the efficiency frontier (Barr et al., 1999). The three main parametric methodologies include the stochastic frontier approach (SFA), the thick frontier approach (TFA), and the distribution-free approach (DFA). In general, parametric approaches specify a functional form for the cost, profit, or production relationship among inputs, outputs, and environmental factors, and allow for random error (Barr et al., 1999).

The main non-parametric approach is DEA. Originally developed by Charnes, Cooper, and Rhodes (1978), DEA computes the relative technical (or productive) efficiency of individual DMUs by using multiple inputs and multiple outputs. DEA has been proven to be a valuable tool for strategic policy-making and for solving operational problems,

particularly in the service and non-profit sectors. Its usefulness for benchmarking is adopted here to provide an analytical, quantitative benchmarking tool for measuring relative productive efficiency. Productive efficiency examines levels of inputs relative to levels of outputs. To become productively efficient, a firm must either maximise its outputs with respect to its input quantities, or minimise its inputs with respect to its outputs.

This study utilises one of these approaches to measure banking efficiency as well as to examine the impact of government intervention on banking performance.

5.2.2.4 Models of DEA

Since the first study by Charnes et al., (1978) DEA techniques have been applied broadly. The rapid development of DEA has brought with it a variety of models characterised by different features. Two of the basic DEA models are CCR (Charnes, Cooper, and Rhodes, 1978) which tends to evaluate overall efficiency, and BCC (Banker, Charnes, and Cooper, 1984) which tends to determine pure technical efficiency at the given scale of operation and will identify the type of scale efficiency (either increasing, decreasing or constant) (Denizer et al., 2000).

In the CCR model each input and output is weighted and the efficiency of a given DMU is assessed by the ratio of the aggregate weighted output to aggregate weighted input. The weights assigned must be between 0 and1.

The CCR model is also known as the constant return to scale model, and it identifies inefficient units regardless of their scale or size. In this model, both technical and scale inefficiency are presented. The BCC model tends to distinguish technical inefficiencies

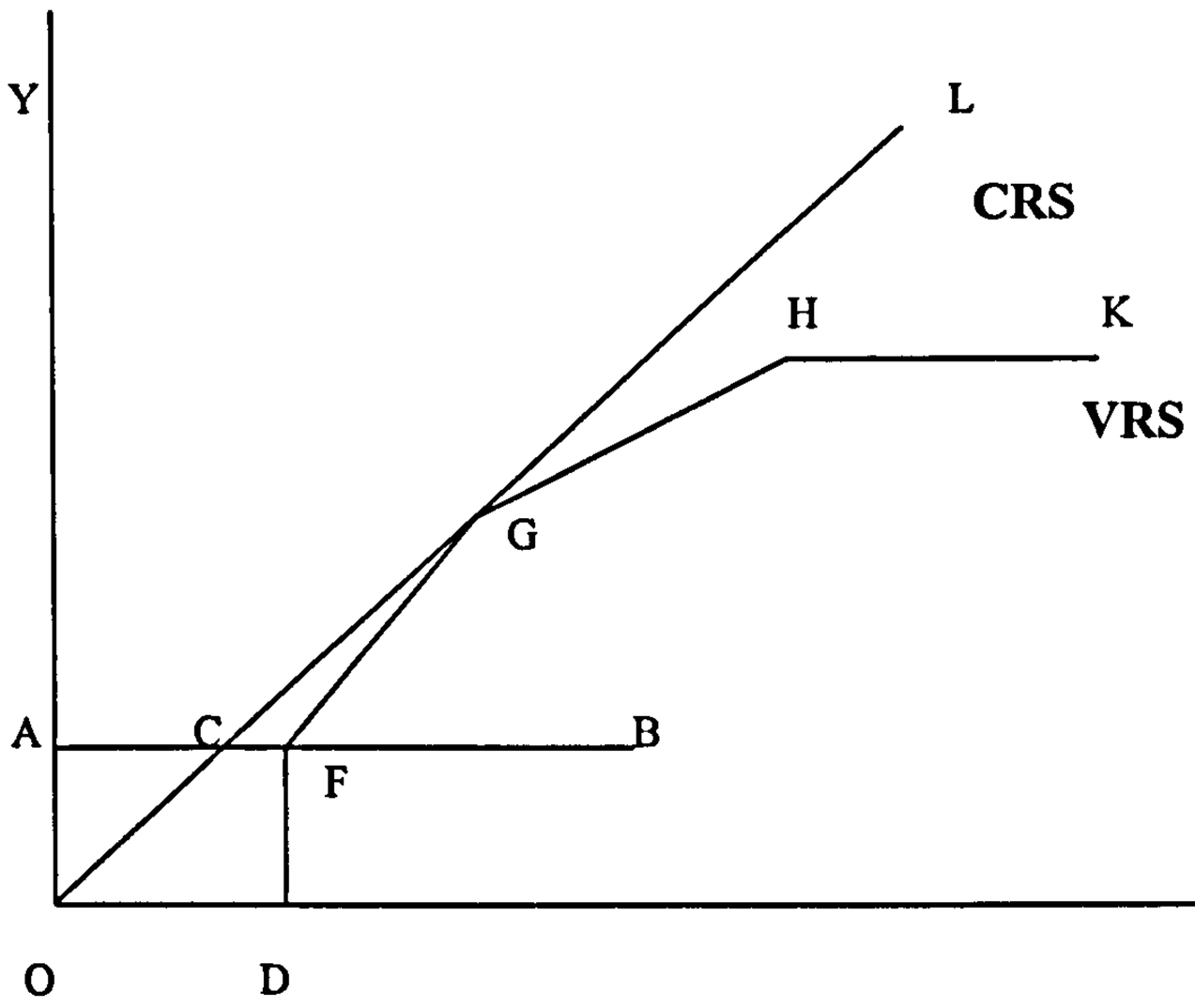
from scale inefficiencies by estimating the pure technical efficiency at the given scale of operation. The BCC model introduces another restriction, that of convexity, to envelopment requirements. This model requires that the reference point on the production function for DMUs will be a combination of the observed efficient DMUs. This is also known as variable return to scale, and this model gives the technical efficiency of DMUs under investigation without considering scale efficiency (Denizer et al., 2000).

It is possible to create and estimate models that provide input-oriented or output-oriented results for both CCR (constant returns to scale) and BCC (variable returns to scale) envelopment. An output-oriented model tends to maximise the proportional increase in the output variable while remaining within the envelopment space, whereas an input-oriented model tends to maximise the proportional decrease in the input variables while remaining within the envelopment space (for further details, see appendix two).

Farrell's measure of technical efficiency can be further decomposed into pure technical efficiency and scale efficiency if the assumption of constant return to scale is relaxed. Figure 5.2 provides a graphical illustration of the CRS and VRS frontiers. The CRS line represents the constant returns to scale frontier OL, while the VRS curve is the variable returns to scale frontier represented by the curve DFGHK. VRS tends to envelope the data more closely than CRS, and consequently will calculate technical efficiency scores as greater than or equal to CRS.

A bank operating at point B on figure 5.2 is technically inefficient. Technical efficiency (TE) is measured by the AC/AB ratio. By relaxing the constant returns to scale assumption, the inefficiency can be decomposed into pure technical inefficiency (PTE) and scale inefficiency (SE).

Figure 5.2: Constant and Variable Returns to Scale Frontiers



The pure technical efficiency can be derived by the condition of variable retrun on scale.

We can add:

$$\sum_{r=1}^{R} \lambda_r = 1$$

The CCR model provides valuable information about cost-benefit evaluation. We can calculate the pure technical efficiency score from the BCC model, and then the scale efficiency score can be derived from technical efficiency and pure technical efficiency

scores, given that the technical efficiency score is equal to multiplication of the pure technical efficiency and scale efficiency scores (Fare et al., 1985).

The new measures are calculated as PTE = AF/AB and SE = AC/AF. Thus, technical efficiency TE can be defined as the product of pure technical efficiency (how close the bank is to the production frontier) and scale efficiency (how close the bank is to producing at optimal scale).

Then we can determine scale efficiency by dividing the overall technical efficiency ratios under the constant return to scale assumption by the efficiency measures under the variable return to scale assumption. The value of scale efficiency is also restricted between zero and one (Ferrier, 1994).

$$SE_i = \frac{\theta_i^* CRS}{\theta_i^* VRS} = \frac{TE}{PTE}$$

The scale efficiency measure provides information about the excessive use of inputs in association with operating non-optimal outputs. In other words, the source of scale inefficiency can be attributed to either operating under increasing returns to scale (IRS) or decreasing returns to scale (DRS). If SE =1 then the DMU is operating at a constant, which is socially and economically optimal. Increasing return to scale (IRS) exists if SE< 1 and decreasing return to scale (DRS) exist if SE>1.

This study is concerned with the input-orientation under the CCR and BCC models in order to measure overall technical efficiency, pure technical efficiency, and scale efficiency with regard to the Libyan commercial banking sector.

5.2.2.5 Window Analysis

DEA is initially used to analyse cross-sectional data, where a given DMU is compared with all other DMUs that are produced during the same period of time, hence neutralising the time factor. However, this can be rather misleading since a dynamic context may seemingly give rise to the excessive use of resources that are intended to produce beneficial results in future periods. As such, panel data prevail over cross-sectional data in that not only do they enable a DMU to be compared with other counterparts, but also they allow the movement of efficiency of a particular DMU to be tracked over a certain period of time. In so doing, panel data are more likely to reflect the real efficiency of a DMU (Cooper et al., 2000; and Cullinane, et al., 2004). Thus, to avoid these problems and to deal with a small sample of DMUs, the window analysis technique has been used for the purposes of this study.

Window analysis is a DEA technique that assesses a DMU with cross-reference to DMUs performing in different time periods. It extends the context of evaluation and expands the size of the reference group. Window analysis commonly uses the sensitivity analysis technique in DEA, and therefore allows the assessment of the stability of relative efficiency scores over time. This technique was first introduced by Charnes et al. (1985) under the name 'windows analysis' and it is used in order to provide discriminatory results even with a small set of DMUs. DEA window analysis works on the principle of moving averages, and is useful in determining the performance trends of a unit over time (Asmild et al., 2004). Window analysis will, in essence, treat each DMU as a different company so that the data on banks at different periods of time are incorporated into the model by treating them as if they were different banks. If a bank is

found to be DEA-efficient in one year despite the window in which it is placed, it is likely to be considered strongly efficient compared to its contemporaries (Webb, 2003). Only a handful of papers have utilized the windows approach to DEA (see Charnes et al., 1985; Day et al., 1994; Hartman and Storbeck, 1996; Asmild et al., 2003, and Webb, 2003 with the last four of these studies utilizing this technique in banking).

However, Webb (2003) emphasises the benefits of DEA windows that already highlighted by Hartman and Storbeck (1996), suggesting that the approach clearly lends itself to analysing trends over a specified time period. Hartman and Storbeck (1996), also pointed out that it could be used to examine the stability and other properties of the efficiency evaluations across, as well as within windows. According to them this can be done by providing a table of summary statistics, which would include the means, variances and ranges of the efficiency results in and between windows. Moreover, in their view, the DEA will be most meaningful when analysing closely homogenous firms operating in the same market environment. They also suggest that window analysis is likely to provide some evidence of the short-run evolution of efficiency for a firm over time. Finally, according to Charnes et al., (1985), DEA widow analysis will provide a test for the stability of efficiency ratings, as well as detecting the trends and seasonal effects in the efficiency performance of individual DMUs.

This study will use window analysis in order to investigate trends in the efficiency of a small sample of five commercial banks in Libya. This following a study by Webb (2003), who used DEA window analysis in order to investigate the relative efficiency level of a large UK retail bank during the period from 1982 to 1995.

5.2.2.6 Some Applications of DEA in the Banking Industry

As discussed earlier, the DEA is a linear programming technique initially used by Charnes, Cooper, and Rhodes (1978) to evaluate the efficiency of non-profit organisations. Sherman and Gold (1985) were the first to apply DEA to banking. They applied DEA to branches of US savings banks by using the production approach. They selected 17 transactions in 14 branches. The results of their study identified that six of the 14 branches were inefficient. Parkan (1987) applied DEA to compare the efficiencies of 35 branches of a major Canadian chartered bank in Calgary using 6 inputs and 6 outputs. Since that time a number of studies have applied DEA to measure the efficiency of banking firms.

Ferrier and Lovell (1990) utilized both econometric and linear programming techniques to measure the efficiency of 575 US banks in 1984. In order to do this they selected three inputs, including the total number of employees, accountancy costs, and expenditure on furniture, and equipment and expenditure on material. On the other hand, five outputs were selected including demand deposit accounts, time deposits accounts, the number of real estate loans, the number of instalment loans, and number of commercial loans. They reported relatively high technical inefficiency as well as modest allocative inefficiency.

Yue (1992) examined the efficiency of 60 commercial banks in Missouri USA, by adopting intermediation approach. The study covered the period from 1984 to 1990, utilizing four inputs which were interest expenses, non-interest expenses, and transaction deposits, and non-transaction deposits. The three outputs included interest income, non-

interest income, and total loans. The findings of this study showed that pure technical inefficiency was the major source of the overall technical inefficiency.

Berger et al (1993) offered the first definitive attempt to measure banking productivity across countries. Their study measured the banking efficiency of the three Nordic countries. The data of this study encompassed 779 banks (503 Finnish, 150 Norwegian, and 126 Swedish). The study employed two inputs (labour and capital) and three outputs (total deposits, total loans, and number of branches). They found that banks in Finland were the most efficient, followed by Norway and then Swedish banks, which were the least efficient of the individual countries. Comparing the best practice frontiers of the three countries, they found the highest share of the banking industry was in Sweden, and the lowest in Finland. The average Swedish bank was much more efficient than either the average the Finish or Norwegian banks.

However, Zaim (1995) investigated the effects of the post-1980 financial liberalisation policies on the efficiency of Turkish commercial banks. The intermediation approach was adopted, and the four inputs selected were the total number of employees, total interest expenditure, depreciation expenditure, and material expenditure. The four outputs estimated were demand deposits, time deposits, short-term loans, and long-term loans were estimated. The sample in this study comprised 39 banks for 1981 and 56 banks for 1990. The findings were based on a comparison of efficiency scores, and indicated that state banks appeared to be more efficient than their private counterparts.

Yeh (1996) applied DEA in conjunction with financial ratios to investigate the efficiency of six commercial banks in Taiwan over the period 1981-1989. The study adopted the intermediation approach using three inputs: interest expenses, non-interest expenses, and total deposits. The three outputs were interest income, non-interest income, and total loans. The results indicated that banks with high DEA scores have higher ratios of capital adequacy, asset quality and profitability and lower ratios in financial leverage and liquidity. The results of this study are used as guidelines have regarding the examination of efficiency of Libyan commercial banking.

Yolalan (1996) employed financial ratios to analyse the performance of Turkish commercial banks over the period 1988-1995. This study used two ratios as inputs: non-performing loans / total assets, and non-interest expenses / total assets, and three outputs ratios: I) shareholders' equity + net income / total assets; non-income / total assets; liquid assets / total assets. The results of this study indicated that foreign banks and to a lesser extent private banks, were the most efficient; whereas the state-owned banks were the least efficient.

In another study associated with Turkish commercial banks, Yildirim (1999) analysed the policy and efficiency performance of the Turkish banking sector between 1988 and 1996, a period characterized by increasing macroeconomic instability. This study adopted the intermediation approach using four inputs and three outputs. The four inputs were demand deposits, time deposits, interest expenses, and non-interest expenses, while the three outputs were loans, interest income, and non-interest income. The results indicated that the sector did not achieve any sustained efficiency gains in the liberalised

era with continuing scale inefficiency. Moreover, efficient banks were more profitable and pure technical and scale inefficiencies were positively related to size.

More recently, a study by Sathye (2001) measured the productive efficiency of the banking sector in India in 94 banks: 27 public sector, 33 private sector, and 34 foreign banks. The study used two models of DEA to measure the banking efficiency during 1997-1998. The two inputs used by the first model were interest and non-interest expenses, whereas the outputs were net interest and non-interest income. The second model, on the other hand, utilised deposits and the number of staff members as inputs, and net loans and non-interest income as outputs. The study showed that the mean efficiency score of the Indian banks compared well with UK banks, while the banks of the public sector had a higher mean efficiency score as compared to the private and foreign banks of the first model. Under the second model, foreign banks were found to possess higher scores than private and public commercial banks in India.

This present study has adopted the intermediation approach, since this is closely linked to the main objectives of the Libyan commercial banks as intermediaries.

5.2.2.7 Advantages and Disadvantages of Using DEA Technique

As mentioned earlier in this chapter, the common difference between parametric and non-parametric approaches is mainly in handling the error term. The main advantages of DEA can be summarised as follows: a) it deals with multiple inputs and outputs; b) it does not require any a *priori* assumptions; c) it uses data which has already been

published in balance sheets and income statements; and d) it has the ability to identify sources and amounts of inefficiency in each input and output for each entity.

However, the principle disadvantage of DEA is that it assumes the data to be free of measurement errors. A second shortcoming is that it indicates relative efficiency of DMUs in regard to a given sample. However, it is more likely that a unit not included in the original sample might show a higher efficiency than the highest efficiency shown in that sample (Avkiran, 1999).

In this study, overall technical, pure technical and scale efficiency of Libyan pre- and post-reform commercial banks in the 1990s are measured using DEA. The main reason for using this approach, rather than a parametric approach, was that it was originally developed to measure efficiency in the public non-profit rather than profit-seeking private sectors. Moreover, the prices of inputs and outputs related to those sectors may not be available or otherwise reliable.

5.2.2.8 Selection of Inputs and Outputs

The most important step in using DEA to examine the relative efficiency of any type of firm is the selection of appropriate inputs and outputs. This is a really complicated problem for banks because there is no agreement as to the appropriate banking inputs and outputs (Yue, 1992). Two kinds of application of DEA have been adopted by banks to justify their choice of inputs and outputs. The first is the intermediary approach that views banks as financial intermediaries whose primary business is to borrow funds from depositors and lend those funds to others for profit. In this approach loans represent

outputs, whereas the various costs such as interest expenses, labour, capital, and operating costs represent inputs. The second approach is the production approach, which considers banks as institutions that use capital and labour to produce loans and deposit account services. Consequently, accounts and transactions represent the outputs for these banks, whereas labour, capital and operating costs represent their inputs (Yue, 1992).

Ferrier and Lovell (1990) pointed out that the production approach is preferable if one needs to measure cost efficiency alone. The Intermediation approach, however, is concerned with the overall cost of banking and is therefore preferred when measuring overall efficiency.

It can be inferred that the main differences between the two approaches can be summarised as follows:

1) The intermediation approach treats deposits as inputs, whereas the production approach teats them as outputs.
2) The intermediation approach includes both operational and financial costs, whereas the production approach only includes operational costs.

Generally speaking, due to the availability of the necessary data, most studies associated with banking efficiency apply the intermediation approach.

5.2.3 Financial Ratios

Banks have aggressively sought to improve their performance by improving cash management and marketing new services that attract additional funds (Sherman and Gold, 1985). Many economic agents are interested in measuring the performance of

banks. Investors, depositors, borrowers and regulators are all interested in measuring liquidity, deposit security, profitability and many other aspects of bank performance.

Financial ratios represent an important tool for decision makers. By using financial ratios, financial managers as well as interested external parties such as investors and lenders are assumed to be able to evaluate a firm's financial success and its ability to meet its future financial obligations (Teppo et al., 1995).

Financial ratios used here are measures both within and outside the banking industry, including the rate of return on assets (ROA), the rate on return equity (ROE), the ratio of bad debts to assets, the ratio of staff costs to assets plus liabilities, and the total costs per employee.

In order to evaluate banking performance in Libya, the CAMEL rating system will be used. The CAMEL rating system is an internal supervisory tool for evaluating the soundness of financial institutions on a uniform basis and for identifying institutions that need a special supervisory attention or concern (FRB, 1996). The rating system can supply additional insight to the examiners into the effects on the productivity of a bank of increases in the number of problems facing banks. This knowledge can be used as a component in early warning systems (Brockett et al., 1997).

The financial ratios selected for the purposes of this study are commonly used to analyse banking performance in many countries. The study will follow the approach used by Yeh (1996). He employed a CAMEL method, which used twelve financial ratios for

evaluating banking performance. This study, however, is based on evaluating five elements in relation to commercial banking in Libya, including capital adequacy, asset quality, management efficiency, earnings quality, and liquidity position. This rating system is designed to take into account and reflect all significant financial and operational factors used by examiners in assessing the credit banking sector's performance (Missouri Department, 1999). Due to the problems affecting commercial banks in Libya, another ratio can be added. The ratio of loan losses to total loans is used as a measure of non-performing loans. However, the 16 ratios selected will, therefore, financial indicators for judging both the financial status and the performance of the banking sector in Libya. A brief description of the five CAMEL rating elements requires an introduction to other groups of measures such as capital adequacy, asset utilisation, liquidity, profitability, and asset quality.

Capital Adequacy The Basle Capital Accord defined the capital adequacy ratio as the ratio of total capital to the sum of credit risk and market risk. Credit and market risks are calculated based on risk weights of 0%, 10%, 20%, 50%, or 100%, attached to the various balance sheet assets. Along that scale, 0% weighting is attached to the least risky assets such as cash held in bank, while 100% weighting is attached to the riskiest assets for instance, claims on non-OECD foreign markets. The Basle Committee set a minimum capital adequacy ratio requirement of 8%, at least half of which must be in Tier 1 capital adequacy (consisting of equity and disclosed reserves). However, the following four ratios need to be used as capital adequacy indicators:

1) Total deposits to total capital

2) Total liabilities to total capital

3) Total capital to total loans

4) Total capital to total assets

Asset Quality This measure focuses on the quality of the loan portfolio and the provisions taken against bad debts in a way that would enable the analyst to identify the weaknesses and strengths regarding the bank performance. The ratio of non-performing loans to total loans is a good indicator of loan liquidity. Due to the nature of data, published by Libyan commercial banks about non-performing loans, loan loss provisions have been selected as an indicator of non-performing loans in the present study. Also, the following ratios have been selected as indicators of asset quality:

1) Loan loss provision / Total loans

2) Loan loss provision / Total assets

Asset Utilisation These ratios tend to measure management ability to employ assets efficiently in generating revenues. Nonetheless, a higher ratio of asset utilisation may indicate that banks are facing high-risk taking (Yeh, 1996). In other words, these ratios may be good indicators in directing the management with regard to asset allocation processes and therefore improving the quality of bank services. The following ratios are selected to assess asset quality:

1) Interest income – interest expenses / total assets

2) Total loans / Total assets

3) Total operating income / Total assets

4) Total Liabilities / Total Assets

5) Non-interest expenses / Total income

Earnings (profitability) Banks, like many other organisations, are driven mainly by the profit motive. Accordingly, profitability is an important indicator of the financial performance of these institutions. Therefore, profitability ratios are undoubtedly the most important financial ratios in financial statements. ROA and ROE are generally regarded as the most appropriate overall bank performance measures. As Ikhide (2000) points out, ROA is a positive sign of the health of a bank but it could also indicate some of level risk-taking. He adds that ROE is a very important ratio when analysing bank performance. It provides an indication of the bank's return on its capital base. A high ROE could be indicative of the fact that the bank's equity base could be too small limiting its ability for further borrowing. Most studies using net profit figure in a measure of profitability. As a result of low net profits in Libyan commercial banks net profit before tax was employed as a measure of earnings liability. The following financial ratios are selected as profitability indicators:

1) Net profit before tax / Total capital (ROE)

2) Net profit before tax / Total assets (ROA)

3) Net profit before tax / Total operating income

Liquidity In order to protect customer deposits against misconduct, the bank management should keep and maintain a certain level of liquidity, which would not affect the profitability of the bank. This study would suggest the following ratios to be used as liquidity indicators:

1) Liquid assets / Total deposits

2) Total loans / Total deposits

In regard to what has been said so far, this study aims to measure the overall technical, pure, and scale efficiencies using the intermediation approach and spanning the period 1980-2000, examining balance sheets and income statements as well as other data related to commercial banks in Libya. The Libyan banking sector is treated as a channel for offering credit to pre-selected activities, and therefore, in order to measure banking efficiency, two scenarios will be considered.

Scenario A: Bank inputs are: 1) interest expenses; 2) non-interest expenses, and 3) total deposits. These inputs represent the cost of labour, administration, equipment, and funds purchased for bank operations and the sources of loanable funds for investment. In this case the total loans represent the bank output.

Scenario B: Bank outputs in this case are: 1) interest income, 2) non-interest income, and 3) total loans. These outputs represent the bank revenues and other major profit making activities. Banking inputs are the same as in scenario A, excluding the total deposits.

This study will use the Data Envelopment Analysis technique (DEA) to measure banking efficiency in association with financial ratios following the CAMEL method as a guide in evaluating the performance of commercial banks in Libya as well as incorporating the findings of the questionnaire.

5.3 Summary

There is no consensus on the best tools for measuring banking efficiency. However, it is becoming commonplace to use financial ratios as tools in evaluating bank performance. Although accounting and financial ratios provide important and useful information for benchmarking a bank's financial performance, they suffer from various limitations. This study employs frontier tools (DEA). Since developed by Chaners, Cooper, and Roheds in 1978, DEA techniques have been employed broadly in different context including, schools, courts, water utilities, non-profit organisations. DEA is a non-parametric technique which calculates the relative efficiency of DMUs relative to other DMUs. The main advantage of this approach is that no preconceived structure is imposed on the data in the determining the efficiency of units. In this study, however, both techniques cross-sectional and window analysis are used in order to measure and evaluate banking performance using 16 financial ratios.

CHAPTER SIX

EVALUATION OF THE PERFORMANCE OF LIBYAN COMMERCIAL BANKING: AN APPLICATION OF DEA

6.1 Introduction

The objective of this study is to measure and to explain the variation in the performance of commercial banks in Libya during the initial stages of the recent banking reforms. While many similar studies have evaluated the performance of the banking sector in developed countries, yet very few studies have been concerned with the developing countries. Particularly in Libya, there have been no studies regarding the evaluation of the performance of the banking system by measuring its efficiency. However, the country's banking system is still dominated by the public sector, despite the fact that with the advent of the new millennium success in the banking industry is routinely associated with efficiency issues.

The main purpose of this chapter is to investigate the aspects of efficiency in the Libyan banking sector between 1980 and 2000. In order to do this, both cross-sectional and window analyse were performed on the five commercial banks operating in the country. The results of the analyses will be discussed following the determination of the inputs and outputs employed in this study.

6.2 Selection of Inputs and Outputs

The selection of output and input variables is the first difficult task that must be addressed by any study on banking. Such selection will be influenced by the concepts and objectives of banking firms, as well as the purpose of the study and the availability of reliable information. The necessary data have been acquired from commercial banks over the period 1980-2000, making use of the approved balance sheets and income statements.

In the process of modelling commercial bank operations it is crucial to understand the objectives of the banking system. This will allow the correct selection of variables to be used in the analysis of banking performance (Bhattacharyya et al., 1997). Commercial banks in Libya are treated as intermediaries with the objective of mobilising funds for directed lending and investment. Following the nationalisation of the banking system in 1970, deposit mobilisation has become one of the major objectives of banking services in Libya, where all major banks have been persuaded to pursue this goal. Furthermore commercial banks have been compelled through government regulations to finance prioritised sectors.

In the light of this situation two main models have been constructed. Using these models in a complementary manner, it has been shown that efficiency scores vary with changes in inputs and outputs. Model A includes three inputs: interest expenses (IEXS); non-interest expenses (NIEXS); and total deposits (TD). In this model a bank output equals its total loans (TL). However, banks are here viewed as organisations, which receive funds from savers, transform them into borrowers. Model

B, on the other hand, focuses on the capabilities of bank management in controlling costs and in generating revenues. In this model, four variables have been selected, i.e. two as inputs (IEXS and NIEXS), and two as outputs (interest income, IINCOM and non-interest income, NIINCOM).

IEXS is the sum of financial expenses that include interest paid and commission paid to intermediaries. NIEXS includes employee salaries and benefits, administrative costs, taxes on income and depreciation and commission paid, banking support fund contribution and other non-operating costs. TD includes demand, time, and savings deposits. These have represented the sources of loanable funds to be invested in assets. In respect of deposits figures, there is no agreement between authors. Some authors consider deposits as outputs (Ferrier and Lovell 1990; Berg et al., 1993; and Zaim 1995. On the other hand some authors such as (Yue 1992; Miller and Noulas 1996; Yildirm 2002) use deposits as inputs given that they are the sources of loanable of funds to be invested in assets.

IINCOM results from summing financial income that includes interest, and commissions received through loans, and NIINCOM that includes income from service charges on deposits accounts, commission, and non-operating income and dividends, fees and other non-interest revenues. Together these represent the bank revenues. TL includes all monetary credit offered by the banking sector. This output represents a major business activity in the Libyan banking sector (52 per cent of total assets).

6.3 Strategy of Analysis

The framework of the analysis in this study is divided into three parts. The first part deals with cross sectional analysis and comprises of four stages. The first stage is the measurement of the bank's performance. Performance is associated with the technical efficiency, in being able to transform multiple resources into multiple financial services, and technical efficiency is calculate by using data envelopment analysis under a constant returns to the scale (CRS) assumption. Also, pure technical efficiency is calculated under the assumption of variable returns to the scale (VRS). Then, we can measure scale efficiency by calculating the ratio CRS/VRS. Moreover, the efficiency of peer units and the target efficiencies of the banking sector are examined. Both scenarios will be applied to compare and contrast the efficiency scores in the light of changes in inputs and outputs.

The second stage of the analysis employs DEA window analysis, aiming to investigate the level of efficiency of commercial banks in Libya (in order to cope with the small sample size of banks) as well as the impact of reform policies in commercial banking. Then the third stage is designed to examine the impact of non-performing loans on banking efficiency. Finally, stage four aims to determine the sources of banking inefficiency in the Libyan banking sector. The second part aims to measure banking performance by using DEA results in conjunction with financial ratios. Part three is conducted through an analysis of questionnaire responses, by describing the potential of internal audit functions, examining their components, and measuring the efficiency of audit functions by employing the DEA technique.

6.3.1 Measuring Efficiency Score

DEA is a non-parametric technique aiming to assess the technical efficiency of decision-making units (DMUs). DEA allows efficiency to be measured without having to specify either the form of the production function or the weightings of different inputs and outputs used by a DMU. This gives DEA an advantage over parametric approaches. Moreover, the DEA model is usually applied to cross sectional data. This study focuses on identifying the level of technical, pure, and scale efficiency for each bank on an annual basis during the period from 1980 until 2000. In order to analyse Libyan commercial banking efficiency, the Warwick DEA software windows version 0.99 was used. This was developed by the Operational Research and System Group of Warwick University Business School. This software allows for variable weights of inputs and offers estimations of units in a constant returns to scale model and with variable returns to scale, which are useful tools in establishing the sources of scale efficiency. Besides this, it generates tables of efficiencies, of targets, and of peer unit groups. The constant returns to scale option in the package is based on Charnes, Cooper, and Roodhs, (1978) model (hereafter termed CCR). On the other hand the variable returns to scale option in this software is based on Banker, Charnes, and Cooper, (1984), (the BCC model).

Efficiency in Libyan commercial banks appears to enjoy a steady rate of progress under both scenarios. Table 6.1 shows the results for a cross sectional DEA assessment over 1980-2000 under both scenarios. The first column presents the period included in this study. The second column shows the overall technical efficiency scores as measured by CCR model; whereas the third column provides the efficiency scores under the BCC model. The fourth column shows the measures of scale efficiency that calculated by

dividing column 2 by column 3. Column five presents technical efficiency under scenario 2 while column six shows pure technical efficiency. Finally, column seven offers scale efficiency estimation under model 2.

Under the assumption of constant returns to scale the overall average of technical efficiency in Libyan commercial banks in the period 1980 and 2000 is 0.854, ranging from 78.2 per cent in 1980 and declining sharply to 76.4 per cent in 1988. This drop may be attributed to instability in the Libyan macro-economy in the 1980s, as this period witnessed massive government intervention in all economic and financial affairs. This may reflect the Libyan commercial banking reducing their inputs to produce the same level of outputs, in order to remain efficient. Assuming input minimisation (the modelling option in this study), an overall TE of 85.4 % will indicate a reduction in inputs equivalent to 17.09 % [(1/0.854)-1], as shown in Table 6.1 and figures 6.1 and 6.2

On the other hand under scenario 2, TE also exhibits a gradual decline between 1980 and 1987, switching to a rise in the two subsequent years of 1989 and 1990, and then recording a steady rise until 2000. Banks in scenario 2 seem to be more efficient in controlling costs and striving towards more productivity in generating revenues. This result may be due to the impact of the initial reforms policy in the Libyan banking sector.

Table 6.1: Overall Performance of Libyan Commercial Banking Sector

YEAR	SCENARIO 1			SCENARIO 2		
(1)	TE (CCR) (2)	PTE (BCC) (3)	SE (4)	TE (CCR) (5)	PTE (BCC)(6)	SE (7)
1980	**0.782**	**0.918**	0.851	**0.895**	**0.956**	0.937
1981	**0.840**	**0.957**	0.878	**0.879**	**0.924**	0.951
1982	**0.827**	**0.939**	0.881	**0.878**	**0.974**	0.901
1983	**0.821**	**0.951**	0.864	**0.925**	**0.995**	0.929
1984	**0.787**	**0.952**	0.827	**0.935**	**0.939**	0.996
1985	**0.779**	**0.940**	0.829	**0.850**	**0.862**	0.986
1986	**0.776**	**0.942**	0.824	**0.918**	**0.949**	0.967
1987	**0.801**	**0.954**	0.839	**0.847**	**0.882**	0.960
1988	**0.764**	**0.956**	0.799	**0.922**	**0.998**	0.924
1989	**0.778**	**0.968**	0.804	**0.917**	**0.978**	0.937
1990	**0.817**	**0.898**	0.910	**1.000**	**1.000**	1.000
1991	**0.839**	**0.927**	0.905	**0.942**	**0.978**	0.963
1992	**0.916**	**1.000**	0.916	**0.889**	**0.910**	0.978
1993	**0.975**	**0.989**	0.986	**0.983**	**0.994**	0.988
1994	**0.995**	**1.000**	0.995	**0.880**	**0.927**	0.950
1995	**0.952**	**0.963**	0.989	**0.922**	**0.937**	0.984
1996	**0.946**	**0.961**	0.984	**0.974**	**0.980**	0.993
1997	**0.963**	**0.991**	0.972	**0.974**	**1.000**	0.974
1998	**0.890**	**1.000**	0.890	**0.995**	**1.000**	0.995
1999	**0.840**	**0.954**	0.880	**0.931**	**0.971**	0.959
2000	**0.853**	**0.954**	0.894	**0.949**	**0.975**	0.973
AVERAGE	0.854	0.958	0.891	0.924	0.959	0.964

Scenario 1= 3 inputs and 1 output
Scenario 2 = 2 inputs and 2 outputs

Figure 6.1: Average Technical, Pure and Scale Efficiency of Libyan Commercial Banking (1980-2000) Under scenario 1

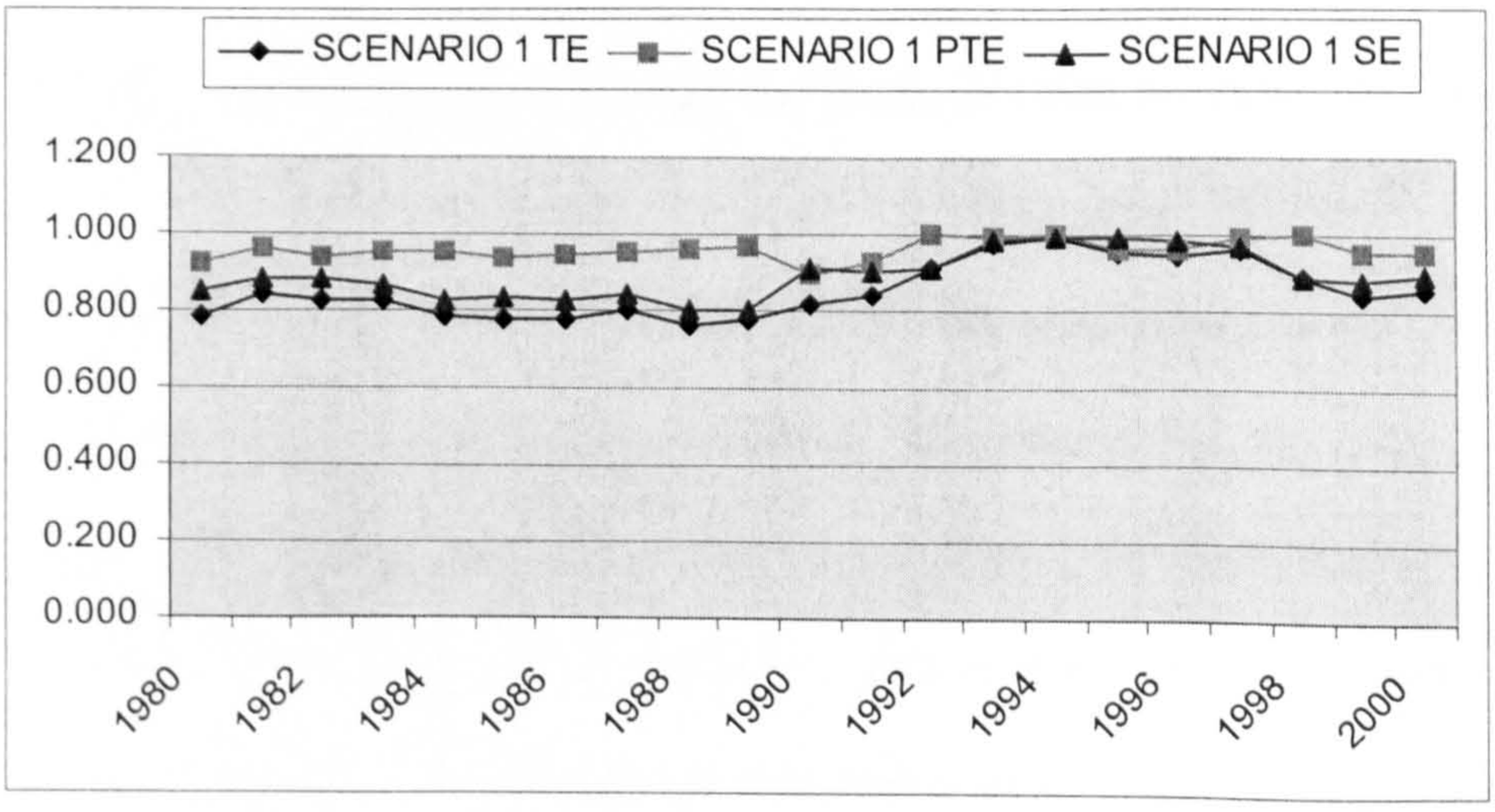
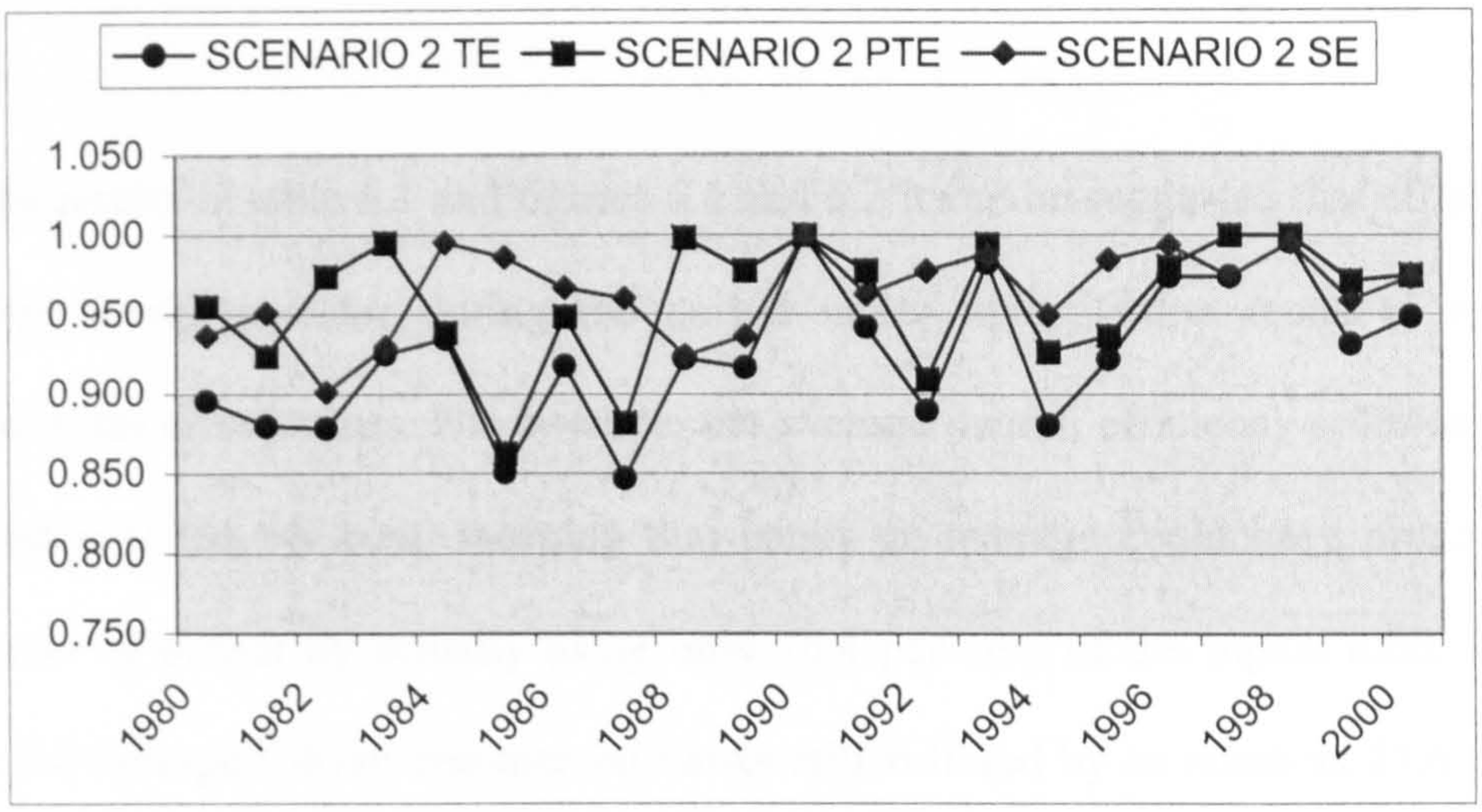


Figure 6.2: Average Technical, Pure and Scale Efficiency of Libyan Commercial Banking (1980-2000) under Scenario 2



Regarding pure technical efficiency (PTE, variable returns to scale assumption), table 6.1 shows that the average estimates of PTE for all banks in the sample were 95.8 and 95.9 per cent under scenarios 1 and 2 respectively. These figures indicate that Libyan banks could on average have produced the same amount of output with about 4.1 per cent less resources used.

Scale efficiency is calculated by dividing the ratios of CCR by BCC. The results are presented in table 6.1 and figures 6.1 and 6.2. The scale efficiency of Libyan commercial banks ranged from 79.9 per cent to 99.5 per cent under scenario 1 and from 90.1 per cent to 100 per cent under scenario 2. This means that the Libyan banking sector suffered by as much as 20 per cent to less than 1 per cent efficiency loss in scenario 1 and from 10 per cent in scenario 2 due to scale problems. Moreover, the average scale efficiency of the Libyan banking sector, as shown in table 6.1, is between

89.1 and 96.4 per cent. This means that inefficiency due to deviations of the actual scale of operation from the most productive size amounts to about 21 per cent.

From the results in table 6.1 and figures 6.1 and 6.2 it can be suggested that efficiency in the Libya banking sector during the period under investigation tends to represent misallocations of resources. For instance, the average overall efficiency score in 1988 is estimated at 0.764 per cent, meaning that banks on average could have produced the same level of output by actually using only 76.4 per cent of the inputs used. In other words, the average Libyan commercial banks still suffered by as much as 23.6 per cent technical inefficiency, due to input wastage.

On the other hand, the efficiency ranking from scenario 2 appears to be significantly different from scenario 1. This may be explained by differences in the inputs/outputs structure of the scenarios. Scenario 2 is based on interest expenses, non-interest expenses, interest income, and non-interest income variables that may differ from the balance sheet variables.

Table 6.2: Overall Performance in Libyan Commercial Banking 1980-2000

Under Scenario 1					
	BANK1	**BANK2**	**BANK3**	**BANK4**	**BANK5**
TE	**0.992**	**0.684**	**0.703**	**0.968**	**0.925**
PTE	**0.994**	**0.843**	**1.000**	**0.990**	**0.961**
SE	**0.998**	**0.811**	**0.703**	**0.978**	**0.963**
Under Scenario 2					
	BANK1	**BANK2**	**BANK3**	**BANK4**	**BANK5**
TE	**0.756**	**0.992**	**0.984**	**0.992**	**0.895**
PTE	**0.859**	**1.000**	**1.000**	**1.000**	**0.934**
SE	**0.880**	**0.992**	**0.984**	**0.992**	**0.959**

Table 6.2 provides summary results on the average efficiency scores of Libyan commercial banks under both scenarios. Under scenario 1, bank 2 is considered as having the lowest TE efficiency score relative with other banks, followed by banks 3 and 5 respectively. In addition, Libyan banks under scenario 1 seem to be less efficient; with the exception of banks 1 and 4. These results indicate that commercial banks are using high levels of inputs to produce the required outputs. On the other hand, the efficiency ranking from scenario 2 appears to be significantly different from those of scenario 1. This may again be explained by differences in the inputs/outputs structure of the scenarios. From table 6.2 one can see that scenario 2 indicates a more modest improvement in efficiency scores than scenario 1, implying that Libyan commercial banks are more efficient in reducing their costs to generate revenues. To sum up, technical efficiency results may suggest that Libyan commercial banking can improve their performance and increase their outputs by 15 and 8 per cent under scenarios 1 and 2 respectively.

Further investigation of the use of DEA analysis can be made by analysing the full results for the bank with the lowest efficiency score in Libya bank 2 in 1988. The results for bank 2 are summarised in tables 6.3 and 6.4. From this perspective, bank 2 seems to be using a greater quantity of inputs than would be needed to produce the same level of outputs.

The values in column two of table 6.3 show the actual inputs and outputs used for 1988. The third column presents the target values that bank 2 would have to achieve in order to be efficient. Column four shows the percentage by which bank 2 would have to improve

each of its inputs and outputs. As shown in table 6.3, bank 2 seems to be using a greater quantity of inputs than would be needed to produce the same level of output. Consequently, bank 2 would have to reduce all inputs in order to produce the same level of total loans as outputs.

Table 6.3: Targets for Unit Bank 2 Efficiency 45.95% in 1988

VARIABLE	ACTUAL	TARGET	TO GAIN	ACHIEVED
-INEXPS	15.0	5.4	63.9%	36.1%
-NONINEXPS	8.4	3.9	54.1%	45.9%
-TODEPS	625.2	256.5	59.0%	41.0%
+TOLOANS	348.3	348.3	0.0%	100.0%

In order to analyse the peer group of bank 2, which would give a better insight into the inefficiency of this bank, table 6.4 shows one reference bank for bank 2. Bank 1 plays a major role while other banks are relatively unimportant. This means that banks should increase their total loans by 118 per cent, reduce their interest expenses by 21 per cent and reduce total deposits by 11 per cent.

Table 6.4: Peers for Unit Bank 2 Efficiency 45.95% in 1988

BANK2		BANK1
	LAMBDA	0.518
ACTUAL	SCALE	1.127
15.0 -INEXPS		11.8
8.4 -NONINEXPS		8.4
625.2 -TODEPS		558.2
348.3 +TOLOANS		758.0

From the above results it can be seen that overall interest expenses emerge as the dominant source of inefficiency across the sample. These results suggest that managers might use such DEA results to identify the presence of inefficiency and the specific areas where the inefficiencies may lie. The DEA results above also suggest alternative

paths to improving efficiency. For instance, bank 2 could rival bank 1 or it could aim for the composite input-output level suggested in table 6.4.

6.3.2 Window Analysis

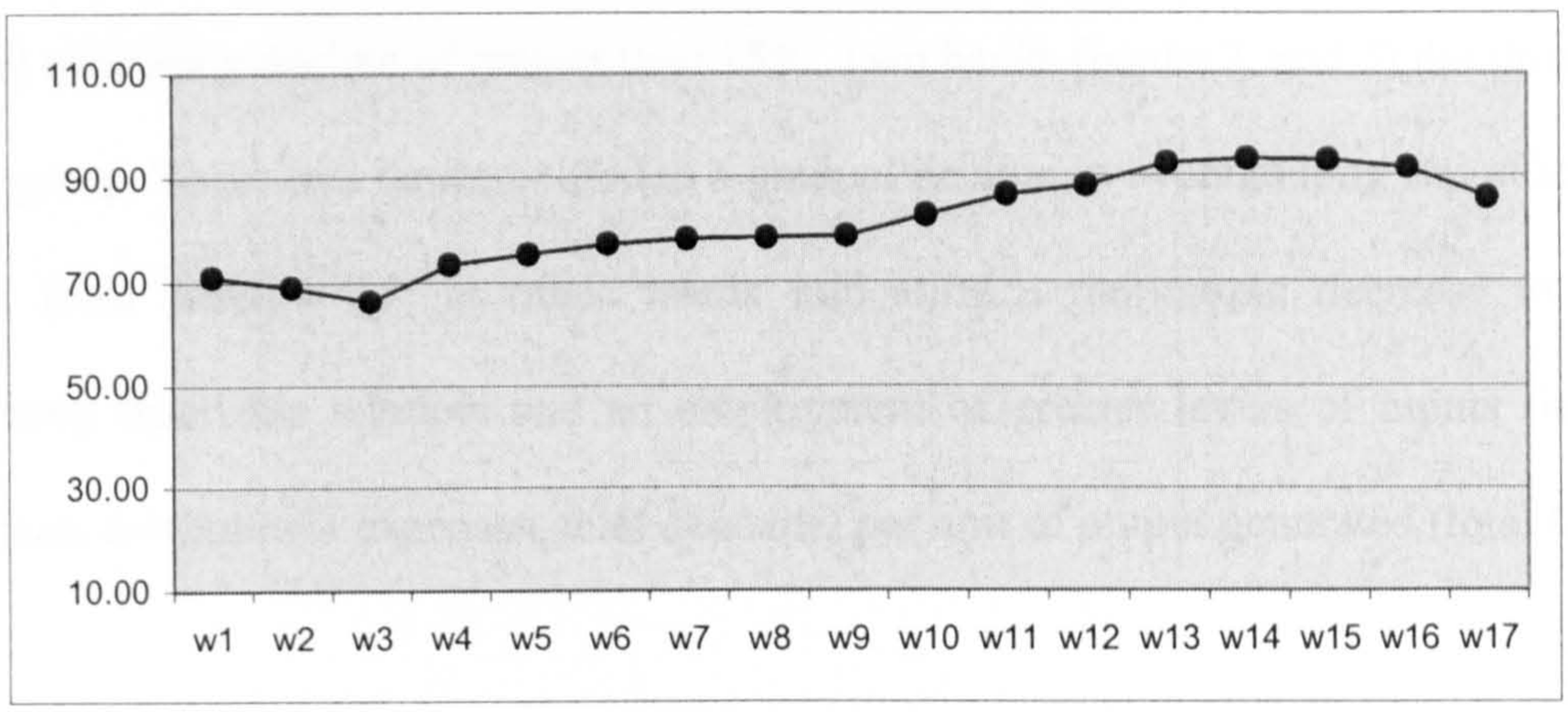
The DEA results shown above may be subject to criticism on the grounds that the commercial banking sector in Libya is basically an oligopoly with only five banks controlling and dominating the market. To evaluate banking performance over the designated period (1980-2000), we need to deal with the problem of the small number of DMUs compared to the number of relevant inputs and outputs. To overcome this problem, DEA window analysis with a width of five years was used, whereby efficiency scores for 21 years covering the period 1980-2000 have been obtained.

The same inputs and outputs employed in scenario 1 have been used to perform the window analysis (full results for each bank are presented in appendix two). However, throughout the designated period of 21years, banking reform policies were been introduced in the early 1990s even though the banking sector has been state-owned. For this reason, and in order to measure the impact of the banking reform policies on banking efficiency, it would be appropriate to consider three phases, i.e. 1980-1987, 1987-1993, and 1993-2000, in the investigation of the trend of relative efficiency using window analysis.

In this study, the number of commercial banks is only five ($n = 5$, $p = 21$ years). To increase the observations to a reasonably large amount but not to over-extend the period beyond the realms of plausibility, a five year window (width) was chosen, i.e. $w = 5$.

So, the first window includes the years 1980 through to 1984. Eventually this resulted in a total of 25 DMUs per window ($nw = 25$) and the analysis was conducted on these 25 DMUs. The window was then shifted by one year and the analysis was performed on the next five year set, dropping the first year and adding a new year, so that the new window will include the years 1981, 82, 83, 84, and 85. Then the next window drops the first two years and add another two, and so on until window 17 includes the years 1996-2000.

Figure 6.3: Average Levels of Efficiency Scores of Libyan Commercial Banks by Windows



From the average aggregate efficiency for each window as shown in figure 6.3, it can be seen that there has been a general growth in the average overall efficiency levels over the entire period under study.

Window 3, covering the period 1982-1986, has showed the lowest efficiency level, which testifies to the macroeconomic instability and the massive government intervention. However, window 15 shows that the average overall efficiency levels of the Libyan commercial banks have dropped by over 6% compared to window 14. Figure 6.3 clearly suggests a trend in efficiency scores in Libyan commercial banks in general.

On the other hand, bank 2 in particular shows a decline of over 22 % from window 14 as shown in appendix three.

Table 6.5 exhibits the overall average efficiency scores for each bank in each window, clarifying the trends and indicating which banks contributed to the decline in efficiency levels after window 14. The banks can be categorised into two groups: i) those banks that maintained relatively high levels of efficiency throughout the period and only showing small decrease in average efficiency levels; and ii) those showing an average overall efficiency decline of greater than 15%. Two banks (banks 2, and 5) dominate this latter group. These two banks exhibited a gradual decline in average long run efficiency levels from window 13, in other words indicating a monotonic decrease in input efficiency from this window and an employment of greater levels of inputs (interest expenses, non-interest expenses, total deposits) per unit of output generated (total loans).

Table 6.6 confirms the results presented in figure 6.3 and table 6.5 by reporting the means and variances across all windows and the greatest differences in efficiency scores recorded by a bank for single year, and as well as the difference between maximum and minimum scores from the overall evaluation of that bank. The variance of efficiency scores of a DMU across windows describes the stability of its performance. A larger value may reflect a wide performance fluctuation. The results show the relative stability of each bank's results and are a further indication of the efficiency and stability of bank 1. The mean of for the entire sample of efficiency scores for bank 1 is 93.59% with a variance of 57.002, which is the lowest found for ay bank over the whole period. On the

other hand banks 2, 3, and 5 show larger values of variance, which may reflect higher levels of fluctuation in their performance.

To sum up, the evidence indicates that overall efficiency has grown over the period under study until window 13, and then a decline began in window 14, which covers the years 1993-1997. Furthermore, much of this lower performance can be attributed to banks 2, 3, and 5. The most consistent performance is for banks 1 and 4. More analysis concerning the efficiency levels of Libyan commercial banks is concluded.

Table 6.5: Average Efficiency Scores for Libyan Commercial Banks in Each Window

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17
BANK 1	97.56	97.56	95.74	94.30	94.74	95.89	95.82	93.33	90.16	90.79	90.66	89.88	91.01	96.10	93.88	94.85	88.77
BANK 2	60.66	60.01	53.44	53.44	46.20	45.49	47.94	47.40	52.83	63.91	72.62	75.79	93.99	91.79	86.98	78.35	69.52
BANK 3	41.23	40.04	44.95	40.10	41.02	46.36	50.13	53.83	53.37	60.69	70.77	75.55	81.96	83.91	88.30	89.66	88.10
BANK 4	87.17	87.25	90.97	92.33	95.20	99.73	100.00	100.00	100.00	100.00	99.62	99.49	100.00	99.24	99.38	99.69	99.86
BANK 5	69.08	60.61	46.64	87.31	99.30	99.09	97.34	97.96	97.45	97.99	98.82	100.00	95.19	95.19	96.53	95.18	82.63
Average	**71.14**	**69.10**	**66.35**	**73.50**	**75.29**	**77.31**	**78.25**	**78.50**	**78.76**	**82.68**	**86.50**	**88.14**	**92.43**	**93.24**	**93.01**	**91.55**	**85.78**

Table 6.6: Window Analysis Mean, Variance, Difference Statistics

	Mean	Variance	GDY	TGD	St.Dev
BANK 1	**93.59**	**57.002**	**22.02**	**27.02**	**7.549**
BANK 2	**64.46**	**407.169**	**27.12**	**63.84**	**20.178**
BANK 3	**61.28**	**399.713**	**12.84**	**71.58**	**19.992**
BANK 4	**97.05**	**58.714**	**35.58**	**35.95**	**7.662**
BANK 5	**89.19**	**464.590**	**75.17**	**75.83**	**21.554**

GDY = Greatest difference in the same year but in different windows
TGD = Total greatest difference for entire period
St.Dev = Standard Déviation

In order to investigate the impact of the reforms policies on banking efficiency in Libyan commercial banks by using results obtained using DEA-window analysis, the same inputs and outputs were employed to which gave the results under scenario 1. Therefore, the entire period of study was divided into three phases pre, in, and post reforms policies. Table 6.7 gives a summary of efficiency scores for 1980-1987, 1987-1993, and 1993-2000 (the period representing initial banking reforms policy) for the banks. The columns headed "means" are obtained by calculating the efficiency scores from the window analysis of individual banks under scenario 1 under the CCR model. At this point, the means and variances of efficiency scores pre- and post initial reforms policies for each Libyan commercial bank was calculated. By calculating the means and variances the study can identify if, on average, the efficiency scores changed prior to and after the initial reforms polices. Significant changes in the averages will result in drawing a clearer picture concerning the impact of the reforms policy on banking efficiency.

The period 1980-1987 was characterised by high levels of government intervention, and by the instability of the Libyan macro economy. This may have led to the results showing that most of the banking sector was highly inefficient (i.e. a low average of efficiency scores, and high variarance of 64.098). In this period only one bank achieved high efficiency scores (bank 1).

Table 6.7: Summary of Efficiency Scores for Entire Period

	Period 1980-1987 W1-W4		Period 1987-1993 W4-W10		Period 1993-2000 W10-W17	
	Mean	Variance	Mean	Variance	Mean	Variance
BANK 1	96.29	2.496	93.57	5.293	91.99	6.804
BANK 2	56.88	15.917	51.03	41.948	79.11	117.265
BANK 3	41.58	5.347	49.35	54.887	79.86	103.525
BANK 4	89.58	7.587	98.18	9.793	99.58	0.090
BANK 5	65.91	289.143	96.63	17.472	95.19	29.100
Average	70.048	64.098	77.752	25.8786	89.146	51.3568

The second period reveals a gradual return to privatisation and the mean value has increased slightly when compared to the period 1980-1987. In this period banks 4 and 5 improved their efficiency scores, but on the other hand the efficiency scores of banks 1and 2 dropped by 3% and 6% respectively.

The third period of 1993-2000 is regarded as the period of initial reforms in many sectors. The banking sector in particular witnessed the emergence of the first private bank in the country in 1995, followed by more than 40 domestic banks. This may be reflected in the increase in efficiency scores to 89.14 per cent. As individual institutions, only banks 2 and 3 still continued to achieve lower efficiency, which indicates that these banks may have had managerial problems. For example, both banks had the highest rates of non-performing loans of all the banks. These results may help to provide an answer to the main question of why the initial banking reforms did not have a high impact on banking efficiency during the period of study.

6.3.3 The Impact of Non-performing Loans on Efficiency

As mentioned earlier, the main objectives of Libyan commercial banking following the nationalisation programme in 1971 was mainly to offer credit for sectors chosen by government. However, this situation has led to the increases of loan losses (i.e. non-performing loans) in the balance sheets of Libyan commercial banks. This is reflected in the growing size and of numbers non-performing loans in the Libyan banking sector. For instance, the rate of allowance for loan losses exceeded 55 % in one of the Libyan banks as discussed in chapter 4. So, for this reason, the results for banking efficiency scores presented on table 6.1 are likely to be higher than the real scores, due to this exaggeration

caused the by ratio of non-performing loans. Here the analysis is extended to investigate the impact of non-performing loans on banking efficiency in this period and banking efficiency under scenario 1 is measured by using net loans instead of total loans (i.e. 3 inputs and 1 output). Consequently, a comparison between both scenarios is considered in the remainder of this chapter.

Table 6.8: Efficiency Scores of Libyan Commercial Banking under Scenario 1

Year	TOTAL LOANS			NET LOANS		
	TE	PTE	SE	TE	PTE	SE
1980	**0.782**	**0.918**	0.851	**0.775**	**0.915**	0.846
1981	**0.840**	**0.957**	0.878	**0.828**	**0.949**	0.873
1982	**0.827**	**0.939**	0.881	**0.814**	**0.930**	0.876
1983	**0.821**	**0.951**	0.864	**0.796**	**0.938**	0.849
1984	**0.787**	**0.952**	0.827	**0.755**	**0.950**	0.794
1985	**0.779**	**0.940**	0.829	**0.735**	**0.939**	0.783
1986	**0.776**	**0.942**	0.824	**0.725**	**0.940**	0.771
1987	**0.801**	**0.954**	0.839	**0.734**	**0.954**	0.769
1988	**0.764**	**0.956**	0.799	**0.684**	**0.935**	0.731
1989	**0.778**	**0.968**	0.804	**0.687**	**0.935**	0.735
1990	**0.817**	**0.898**	0.910	**0.712**	**0.874**	0.814
1991	**0.839**	**0.927**	0.905	**0.744**	**0.894**	0.832
1992	**0.916**	**1.000**	0.916	**0.841**	**0.986**	0.853
1993	**0.975**	**0.989**	0.986	**0.943**	**0.989**	0.954
1994	**0.995**	**1.000**	0.995	**0.943**	**0.995**	0.947
1995	**0.952**	**0.963**	0.989	**0.950**	**0.970**	0.980
1996	**0.946**	**0.961**	0.984	**0.892**	**0.961**	0.928
1997	**0.963**	**0.991**	0.972	**0.838**	**1.000**	0.838
1998	**0.890**	**1.000**	0.890	**0.825**	**1.000**	0.825
1999	**0.840**	**0.954**	0.880	**0.763**	**0.954**	0.800
2000	**0.853**	**0.954**	0.894	**0.780**	**0.958**	0.814
Average	0.854	0.958	0.891	0.798	0.951	0.839

Table 6.9: Impact of Non-performing Loans on Technical Efficiency

	BANK1	BANK2	BANK3	BANK4	BANK5
TE 1	**0.992**	**0.684**	**0.703**	**0.968**	**0.925**
TE 2	**0.995**	**0.521**	**0.645**	**0.962**	**0.868**

TE 1: 3 input and 1 output Total Loans
TE 2: 3 inputs and 1 output Net Loans

Table 6.8 presents the average technical efficiency (TE) scores under both models. From these results it can be seen that the efficiency of Libyan commercial banks declined from 85.4 per cent to 79.8 per cent with an approximate 6% decline during the period under study. This decline can be ascribed to the growth of non-performing loans in the banking sector; so that consequently efficiency scores in Libyan commercial banking deteriorated during the 1980s. The relatively poor performance during the period from 1980 to 1992 is then due to instability in the macro economy in general and inefficient bank management in particular.

Turning to the figures for bank 1 first, it seems that efficiency was high under both models. Bank 2 had the lowest efficiency under both models, scoring 0.684 in model 1 and 0.521 in model 2, as shown in table 6.9. In bank 3 a similar picture emerges, with relatively low efficiency scores of 0.703 and 0.654 under models 1 2 respectively, as shown in table 6.9. These results reflect that banks 2 and 3 might have suffered from lack of efficient managerial decision-making concerning credit, leading to a high level of non-performing loans.

The technical efficiency of bank 4 seems to be steady during the period of the study. It records on average 96 per cent, which is the second highest relative efficiency score found in the Libyan banking sector. In bank 5 the overall technical efficiency declined by 7% under model 2 when using net loans as the unique output. This result may represent the low impact of non-performing loans on efficiency scores in this bank.

In the light of the above results, the management of Libyan commercial banks must be addressed. Growth in the size of non-performing loans in their balance sheets may have occurred for many reasons. Firstly, total loans in Libyan commercial banks are exaggerated by the ratio of non-performing loan that affect the financial positions of these banks. Secondly, in these circumstances efficiency scores cannot reflect their real performance accurately. Finally, commercial banks should clearance their balance sheets by cancelling bad loans in order to continue in their business.

To sum up, a number of the commercial banks studied, and notably banks 2, 3, and 5, may have been affected by high levels of non-performing loans over the period. Consequently the efficiency of most banks under study declined due to an increased ratio of non-performing loans. This may indicate problems in credit decisions in the banking sector, which may affect bank profitability in the long run. However, all banks could reasonably be expected to record productivity improvements over time.

6.3.4 Sources of Inefficiency Scores of Libyan Commercial Banking

One of the main advantages of DEA is its capability to provide information concerning sources of inefficiency in both outputs and inputs. This information is very important for managers in improving organisational performance. As Chen and Yeh (2000) point out:

> *"since the technical efficiency score (TE) is the product of pure technical efficiency (PTE) and the scale efficiency (SE) scores, the relative size of these scores provide evidence as to the sources of inefficiencies".*

In other words, pure technical inefficiency results from using more inputs than necessary (input waste), while scale inefficiency occurs if a bank does not operate at constant returns to scale.

As table 6.1 shows, the average SE of 0.891 is lower than the average PTE at 0.958, indicating that pure technical efficiency has less importance than scale efficiency as a source of inefficiency among all the banks. Thus it emerges that scale efficiency in Libyan commercial banking is a more important source of inefficiency. This may be attributed to under-utilisation of inputs or the incorrect selection of inputs rather than inappropriate returns to scale. This finding of the relative importance of scale inefficiency is similar to the conclusion reached by Yildirim (2002) for the Turkish banking sector and Katib and Matthews (1999) for Malaysian banks.

Even if pure technical inefficiency is relatively less important, it cannot, however, be ignored since there still exists some degree of pure technical inefficiency. This information also determines the scale of operations as well as the assessment of whether a particular bank experiences decreasing, increasing or constant returns to scale.

Table 6.10 Returns to Scale of Frontier Banks

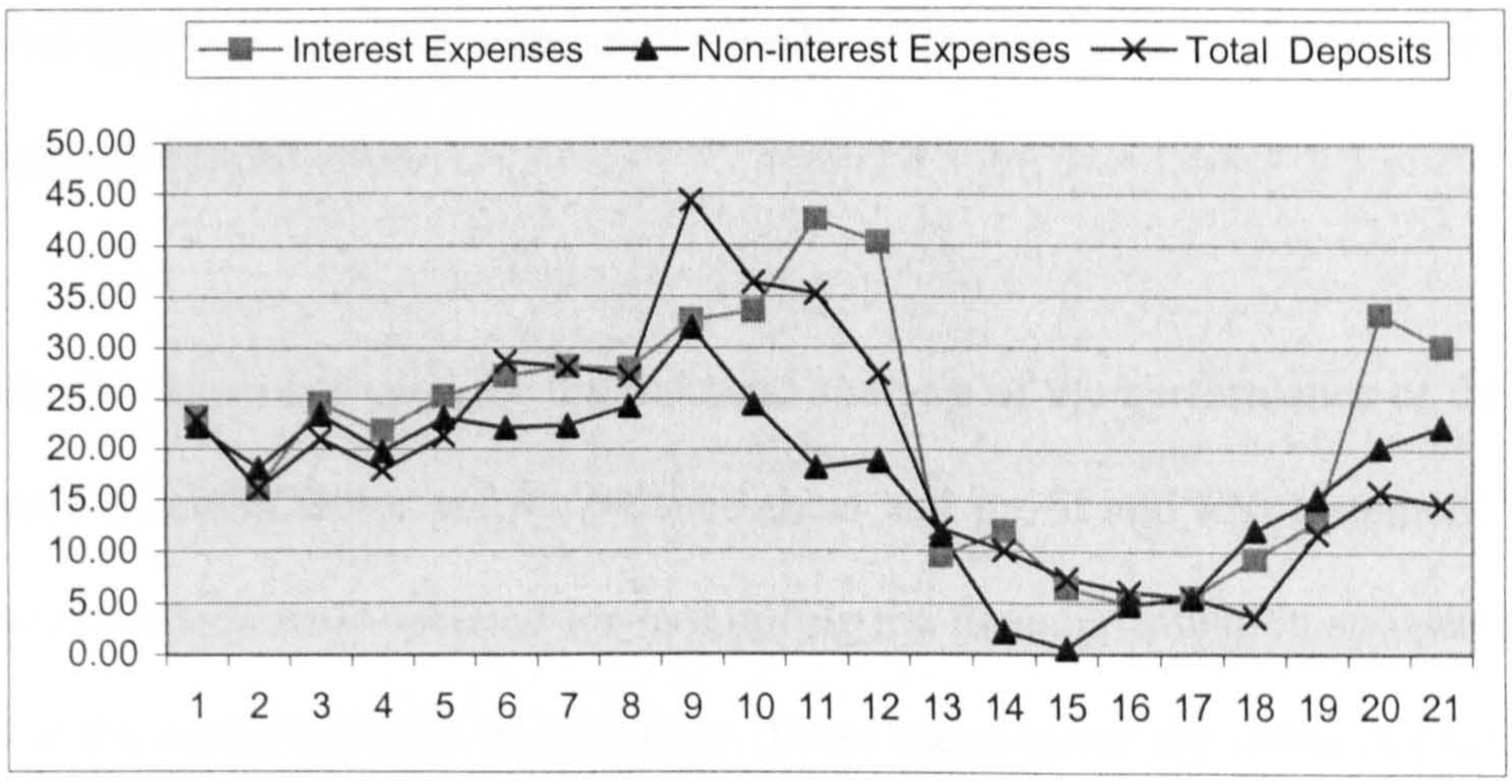
	Increase Return to Scale (IRS)	Constant Return to Scale (CRS)	Decrease Return to Scale (DRS)
Number of banks	70	28	7
Percentages	67%	27%	6%

As table 6.10 shows, only 7 banks (6%) exhibited decreasing returns to scale, meaning that 94% of all banks exhibit increases in constant returns to scale. Sixty-seven per cent of scale inefficient banks are operating with increasing returns to scale, while 27 % are operating with constant returns to scale. These results indicate that most of the banks were not operating at constant returns to scale. Our findings are similar to those of Fukuyama (1993) for Japanese banking, which indicated that 76% of all banks exhibit increasing returns to scale.

For bank managers, the next step is to estimate how much output could be increased if inefficient banks could protect the level of their inputs. This means that additional decreases in specific input could be achieved for a bank to operate as well as the most efficient banks, and increases in output could be reached at lowered levels of resource input.

Figure 6.4 shows that, on average, Libyan commercial banks employed excessive amounts of resources for all inputs over the study period. From this figure it can be seen that until 1990 the percentage of over-usage of inputs increased steadily.

Figure 6.4: Sources of Inefficiency



This means that Libyan commercial banks were not fully efficient in the utilisation of their resources. After the initial reforms policy the trend declined sharply, meaning that banking in Libya seems to have been less efficient in using its resources. From figure 6.4, interest expenses are the main source of inefficiency in the Libyan banking sector. This may be attributed to the interest rates being set by government. To sum up, the

results suggest that inefficiency sources are both pure technical (operational and managerial) and scale (regulatory).

6.4 Microeconomic Performance

The evaluation of banking performance is generally based on financial statement analysis focusing on financial ratios dealing with asset quality, capital adequacy, earnings quality, liquidity, and management efficiency. In the first stage of this study a financial and statistical analysis of the performance of five Libyan commercial banks for the period 1970-2001 was conducted. Based on the results from this first stage of the study, new samples of banks as well as a subset of financial ratios were proposed to obtain a sub-sample of the best possible comparable banks with the most representative banking performance financial ratios

The financial statements used for the financial analysis of the performance of the Libyan commercial banking sector are the balance sheet and profit and loss statement. Sixteen financial ratios have been selected for monitoring the financial situation and performance of each of the banks included in this study. These ratios cover the fields of profitability, liquidity, management efficiency, capital adequacy, and asset quality, and are given in groupings based on the CAMEL rating.

6.4.1 DEA in Conjunction with Financial Ratios- Model One

As indicated previously, financial ratios are commonly calculated to evaluate the different characteristics of a bank's performance. However, this tool of analysis suffers from many limitations (for more details see Yeh, 1996). In order to evaluate banking

performance and to investigate differences in the financial performance of Libyan commercial banks with different efficiency scores, which have already been measured by DEA and exhibited in table 6.11, banks in the sample were classified into three groups; high, medium, and low, in accordance with their respective DEA efficiency scores. To achieve the objectives of this study, 16 common financial ratios were calculated in a similar way to Yeh's (1996) study measuring the efficiency of 6 Taiwanese banks using DEA technique in conjunction with 12 financial ratios. In general, the CAMEL rating is used to classify financial ratios into 5 groups in terms of: capital adequacy, asset utility, management efficiency (asset quality), earning (profitability), and liquidity position.

Consequently, the ANOVA test was employed, because this is a statistical method, which has been found more appropriate in financial research to summarise and identify results such as those depicted in table 6.12 in conjunction with the results from the financial ratios.

From table 6.11, under scenario 1 using three inputs and one output (Model One), it can be seen that there is a total of DEA efficiency scores (21 years * 5 banks), covering the period under study. To discriminate among the financial conditions for Libyan commercial banks over years with different DEA scores, the 105 bank/year combinations were classified into three groups: a high DEA group between 1 to 0.99, a medium group between 0.98 to 0.85, and a low group of 0.84 or less.

The second stage is to categorise the results through financial ratios by using DEA scores in three groups as clarified above. Then ANOVA method was to calculate the mean

values of the three groups, with significance judged at the 5% confidence level, as well as F-values and differences between groups calculated using the Scheffe test.

6.4.2 Empirical Results from DEA in Conjunction with Financial Ratios

The results in table 6.11 give a summary of DEA efficiency scores of Libyan commercial banks during the period 1980-2000 under constant returns to scale. Moreover, table 6.12 shows the mean values of the financial ratios and the mean differences between groups.

Table 6.11: Overall Efficiency Scores of Libyan Commercial Banks under Scenario 1

(3 Inputs, 1 Output)

Years	BANK1	BANK2	BANK3	BANK4	BANK5
1980	1.000	0.421	0.489	1.000	1.000
1981	1.000	0.757	0.443	1.000	1.000
1982	1.000	0.581	0.578	0.977	1.000
1983	1.000	0.643	0.463	1.000	1.000
1984	1.000	0.536	0.397	1.000	1.000
1985	1.000	0.459	0.434	1.000	1.000
1986	1.000	0.465	0.417	1.000	1.000
1987	1.000	0.507	0.541	0.955	1.000
1988	1.000	0.459	0.515	0.871	0.975
1989	1.000	0.530	0.590	0.852	0.917
1990	1.000	0.574	0.784	0.813	0.914
1991	1.000	0.611	0.721	1.000	0.864
1992	1.000	1.000	0.586	0.993	1.000
1993	1.000	1.000	0.951	0.926	1.000
1994	1.000	1.000	0.987	1.000	0.986
1995	1.000	1.000	1.000	0.948	0.813
1996	1.000	1.000	1.000	1.000	0.729
1997	1.000	0.957	0.859	1.000	1.000
1998	0.986	0.791	1.000	1.000	0.671
1999	0.994	0.495	1.000	1.000	0.711
2000	0.861	0.568	1.000	1.000	0.836
AVERAGE	**0.992**	**0.684**	**0.703**	**0.968**	**0.925**

As shown in table 6.12, group 1 refers to the ratio for measuring capital adequacy in banking organisations, including four financial ratios. Group 2 relates to the measuring

of loan portfolios in banking firms in order to identify the points of strengths or weaknesses of this portfolio, where two financial ratios were already chosen to test the asset quality of loans portfolios in Libyan commercial banks. Group three refers to the ratio of asset utilisation, which measures management efficiency in using assets to generate revenues. Group four refers to profitability as the most important indicator of the financial performance of institutions. In the Libyan case this ratio is less important, due to the nature of ownership in the banking sector by government, as well as the objectives of the banking sector in Libya as being focused on mobilising resources and to offer credit for pre-selected sectors. Finally the liquidity group relates to the ability of organizations to meet their obligations by maintaining a certain level of liquidity without affecting profitability.

In order to examine the significance of these data, a post hoc test was conducted to obtain the Scheffe Difference so as to distinguish significant differences between the three groups. Consequently, the means of ratios among three DEA groups with respect to each other are calculated. Both ANOVA tests and Scheffe Differences are used as complementary tools.

Table 6.12: Mean Financial Ratio and Differences between DEA Groups

	High (N =54)	Medium (N=17)	Low (N=34)	F-Value	SIG	SIG	Scheffe Difference*
DEA Efficiency Scores	1-.99	.98-.85	.84-less			Y/N	
Group 1:Capital Adequacy							
1) TC / TA	0.055	0.067	0.068	3.860	0.024	Y	1.....3
2) TC / TL	0.138	0.221	0.250	17.441	0.000	Y	1....3
3) TLIAB / TC	24.32	20.95	19.05	2.526	0.085	N	
4) TD / TC	15.67	14.57	12.14	2.660	0.075	N	
Group 2:Asset Quality							
5) NPL** / TL	0.187	0.290	0.352	9.106	0.000	Y	1...3
6) NPL** / TA	0.071	0.080	0.092	2.800	0.065	N	
Group 3:Asset Utilisations							
7) NII / TA	0.013	0.014	0.018	3.343	0.039	Y	1...3
8) TL / TA	0.472	0.362	0.300	13.595	0.000	Y	1....3
9) TOI / TA	0.022	0.023	0.034	10.619	0.000	Y	1....3,2...3
10)TLIAB / TA	0.945	0.934	0.938	3.802	0.026	Y	1...3
11) NIE / TI	0.266	0.244	0.187	6.532	0.002	Y	1...3
Group 4: Earrings Liability							
12) NPBT / TC	0.147	0.144	0.240	7.027	0.001	Y	1....3,2...3
13) NPBT / TA	0.004	0.004	0.008	3.726	0.027	Y	1. ...3
14) NP / TOI	0.146	0.245	0.282	13.840	0.000	Y	1.... 3
Group 5: Liquidity							
15) TL / TD	0.772	0.544	0.450	16.674	0.000	Y	1.... 3
16) LA / TD	0.430	0.415	0.399	.791	0.456	N	

***Significant at the 0.05 level of confidence**
**** Allowance loan loss**

Table 6.12 shows that there are significant differences between groups in most of the financial ratios at the significance level 0.05, with the exception of 2 ratios of: capital adequacy, one ratio in the asset quality, and one in the liquidity factor. From these results it appears that banks with higher scores of DEA efficiency also have higher scores in other ratios; two in capital adequacy, three in asset utilisation, and one in liquidity. In contrast they have lower ratios in asset quality, financial leverage, and all profitability factors. Further explanation of each factor is given below.

***Capital Adequacy*:** From the results above, two measures of this factor were found to be not significantly different between groups. Ratio 1, total capital / total assets, presented a mean value of 5.5% in banks with high DEA scores, whereas it was 6.7% and 6.8% for medium and low groups respectively. Table 6.12 shows that for ratio 2, the high group has a value of 14 per cent, whereas for the low group it is 25 per cent. Ratio 3 measures total liabilities / total capital. The results show that the total liabilities of the banks were higher than their capital by 24 times in the high groups. This may indicate that Libyan commercial banks are dependent on their liabilities as sources of payment, rather than their capital. Ratio 4, total deposits / total capital, presents a higher mean value of 15.6 per cent in the high group and 14.5 and 12.1 per cent in medium and low groups respectively.

The lower results in capital adequacy reveal that banks in the high groups exhibit lower capitalisation ratios. This may be attributed to the ownership structure of these banks. For instance, 3 out of the five banks are fully owned by government and more than 50 per cent of the shares of the other two banks are controlled by the state.

***Asset Quality*:** one of the two financial ratios in measuring asset quality shows a significant difference between groups. As discussed earlier allowance for loan losses is employed in this study as an indicator to represent non-performing loans in Libyan commercial banking. Raito 5, non-performing loans / total loans shows that the proportion of non-performing loans in low groups was 35 per cent whereas in the high group as 19 per cent. This result indicates that non-performing loans may be the main problem in Libyan commercial banks. Similar findings were found for ratio 6, which

measures the proportion of non-performing loans as a percentage of total assets, which was 9.2 per cent in the low group, and 7.1 per cent in the high group. This result may support the argument that the banking sector in Libya suffers from the growth in non-performing loans due to a lack of credit policy and government intervention. This supports our findings concerning the main reason for the decline in banking efficiency, when net loans were used as the only output.

Asset Utilisation (Management efficiency): Five measures of asset utilisation have shown significant differences between groups. Ratio 7, net interest income / total assets presents a mean value of 1.3 per cent in the high group, and 1.8 per cent in the low group. Total loans / total assets ratio measures the percentage of total loans to total assets, and the higher this measure the more important the loan portfolio is in the banking organisation, and the higher the efficiency of bank management in converting deposits to loans as the basis of the intermediation approach. Table 6.12 shows that the mean of ratio 8 registered 47.2 per cent in the high group, and a record mean of only 30.0 per cent for the low group. Ratio 11, non-interest expenses / total income, measures the efficiency of banking management in reducing cost in order to increase revenues. From the results, it seems that mean of the high group at 26.2 per cent is higher than that of other groups. This may reflect the higher proportion of non-interest expenses in the cost structure of the Libyan banking sector. Moreover, it reveals that a non-interest expense is one of the sources of inefficiency, as already found previously.

Earrings Liability: these ratios give insights into operating efficiency in banking organisations. All measures show high statistical significance at the 5 per cent level.

Ratio 12, net profit before tax / total capital (ROE), and ratio 13, net profit before tax / total assets (ROA), show lower percentages in the high groups in comparison with the low group. In general, this result may refer to lower profitability in Libyan commercial banks, which primarily focuses on the mobilisation of resources and offering credit to pre-selected sectors with favoured interest rates, which are already being determined by government. In addition, high level of non-interest expenses in the banking sector also affect banking profitability and efficiency. Ratio 14, net profit / total operating income, is the only measure among the earning factors showing a highly significant difference between the groups. On the other hand this ratio presents a lower mean of 14.6 per cent in the high group. This finding also confirms that the Libyan banking sector experienced low profitability during the period under study.

Liquidity Position: Only ratio 15 shows statistical significance between groups. In both ratios it seems that the means of the high group were higher than those of the low group. Ratio 15, total loans / total deposits, measures the ability of bank management in using adequate policy in order to invest its resources. This shows that Libyan banks have higher liquidity ratios, reflecting some lack of management ability in using their resources. The results show that banks with high efficiency scores also show higher means than other groups. Ratio 16, liquid assets / total deposits measures, show that commercial banks in Libya have high percentages of liquid assets, confirming our argument that Libyan commercial banks have high liquidity ratios which recorded LD 1323.9 million at the end of the year 2000. This figure exceeded the reserves requirements by 144% (CBL, 2001). This may be attributed to lack of investment opportunities in the Libyan market as well as managerial shortcomings.

From the above analysis, banks with high efficiency scores were found to be more effective at the managerial level. All groups (high, medium, and low) appear to have had a significant fraction of non-performing loans, reflecting the inadequate loan allowance for loan losses. This factor would seem to provide clear support for our analysis that Libyan commercial banking has experienced a lack of efficient loan policy due to the massive government intervention of the 1980s. Furthermore, the above analysis shows that low efficiency scores may be explained by instability in credit policy. The findings also confirm that the Libyan banking sector experienced low profitability during the period under study.

6.5 Questionnaire Analysis

6.5.1 Introduction

The questionnaire study attempts to reveal information that could assist in understanding the ways in which the internal control systems operate in Libyan commercial banks. The main objective of this study is to evaluate the performance of the Libyan commercial banking sector. This evaluation is undertaken by measuring efficiency, examining the development of the Libyan banking sector, and by conducting a questionnaire survey to appraise the potential of internal control systems. This stage gathers information not offered in published documents. In order to achieve this purpose a questionnaire survey was conducted to understand how internal controls operated and what their role was in banking efficiency.

6.5.2 Objectives of the Questionnaire Study

The aim of this questionnaire was to appraise the potential of the internal controls systems of Libyan commercial banks. The questionnaire was designed to examine the effective role of internal control systems as managerial tools that already exist to sustain bank management in meeting their objectives and goals. It was, however, also designed to discover senior management's role in establishing the framework for internal control systems in Libyan commercial banks. The questionnaire consisted of 48 questions, divided into the following five parts: general information, audit functions; the role of senior management in audit functions; the scope and limitations of internal audit functions; and the objectives and mechanisms of internal audit functions.

The first part included questions concerning job title, qualification, specialisation, and experience in the banking and auditing fields. The second part covered a variety of issues such as control of internal audit functions, reporting, feedback, employee competence, training programmes, and adherence to and application of the international auditing standards. The third part deals with senior management and its relation to auditing functions, while the fourth part focuses on the scope of the audit function. Finally, the fifth section attempts to investigate the objectives and mechanisms of internal audit functions including a variety of questions designed to discover the quality and efficiency of audit functions. (For more details, see appendix four).

The questionnaire sample consisted of 100 branches of the five Libyan commercial banks, representing 35 per cent of the total branches in 2000 (20 branches of each commercial bank). The distribution of the questionnaire was carried out with the purpose

of covering all levels of auditors in commercial banking; therefore, one headquarters and two main branches were selected for each of the five commercial banks. The remaining 17 were taken from different branches across the country as shown in table 6.13. The responses to questionnaires were later collected from each bank by post or fax. The response rate for the questionnaires was very high and 67 completed questionnaires out of 100 were received from the commercial banks, as table 6.13 shows. The data was processed using SPSS software.

The objectives of this questionnaire were the appraisal of the potential of internal control systems, and to determine their effect on efficiency and performance in Libyan commercial banks. The analysis of the questionnaire results was therefore divided into three stages. The first stage deals with a descriptive analysis of internal control functions. Stage two was focused on estimating the associations and correlations among important variables using statistical inferences, in order to the test four hypotheses regarding the strength of internal audit functions. Stage three attempted to measure the efficiency of audit functions using the DEA technique.

Table 6.13: Questionnaire Distribution and Return

Banks	Questionnaire distributed	Questionnaire Returned	Percentage return rate per bank
Bank1	20	12	60
Bank2	20	12	60
Bank3	20	15	75
Bank4	20	14	70
Bank5	20	14	70
Total	**100**	**67**	**67**

6.5.3 Results

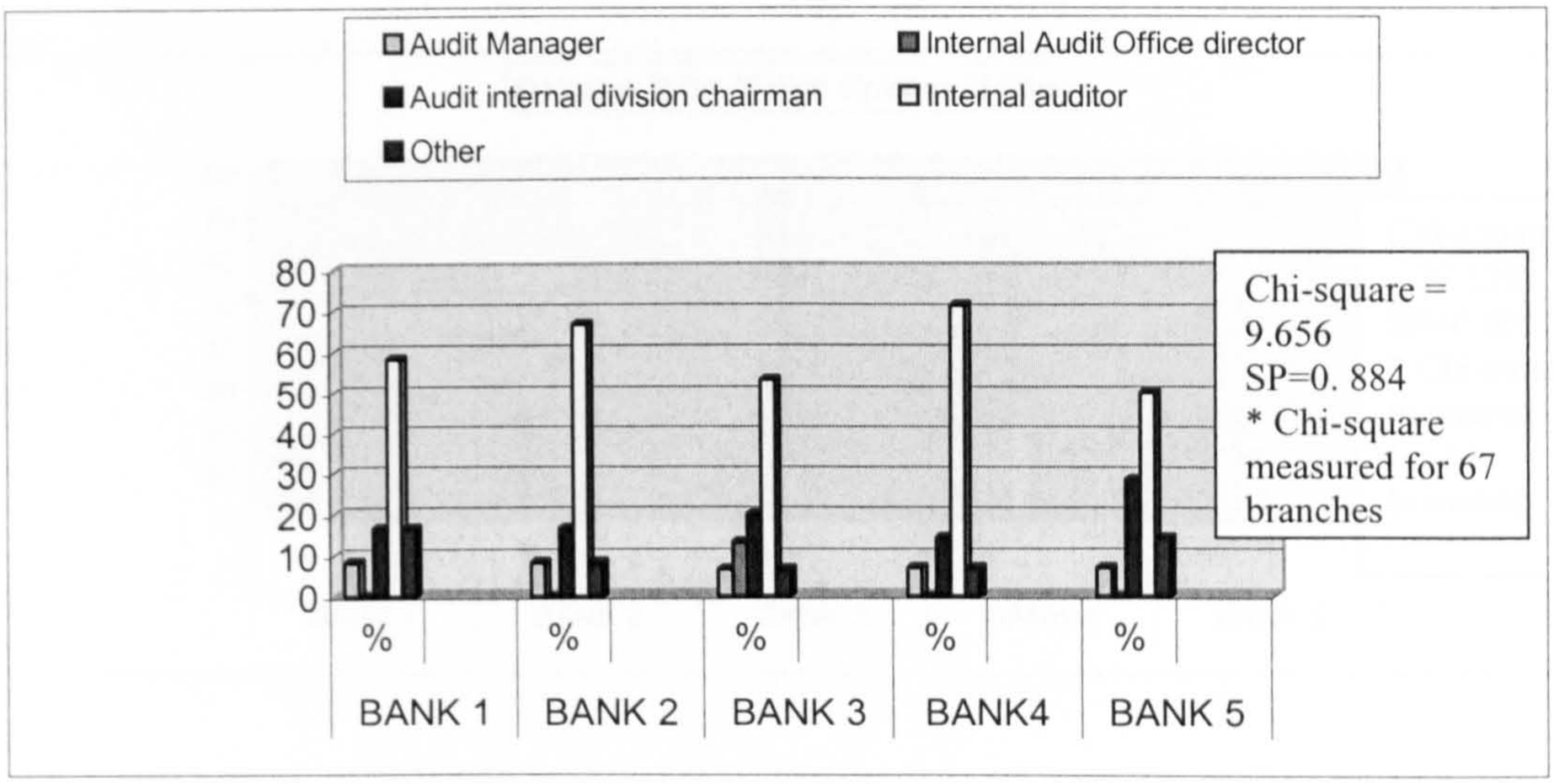
6.5.3.1 Descriptive Analysis

Descriptive statistics serve two purposes: Firstly to explore the data, and secondly to summarise and describe the observations. Here we started by investigating the reality of the internal audit functions in Libyan commercial banks by measuring frequencies and applying the chi-square test. Cross-tabulated data was tested with the chi-square test in order to examine the relationship between variables. The chi-square test allowed the determination of whether or not there was a statistically significant association among variables. As a result of the small sample size, the chi-square statistic was calculated for the entire sample (67 branches) while figures (6.5-6.16) are represented as the difference between banks in the sample.

6.5.3.1.1 General Information

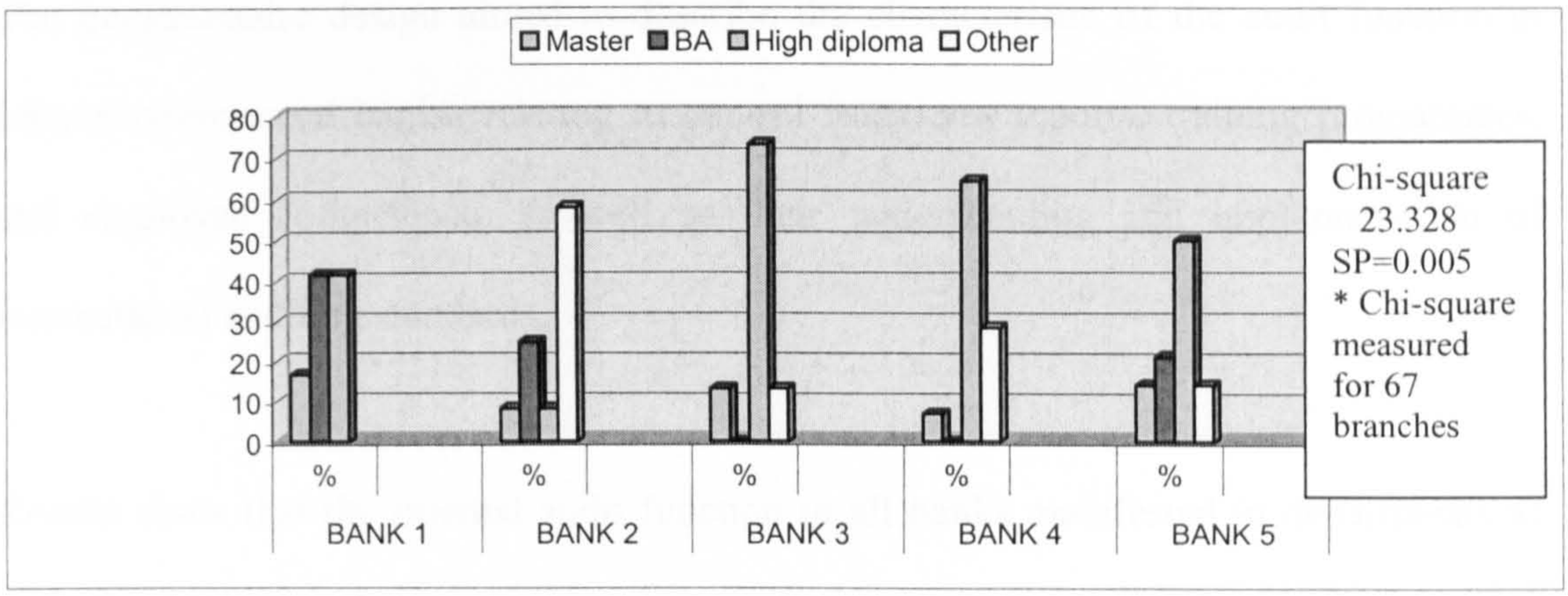
As shown in table 6.1* (All tables with * of questionnaire data can be found in appendix five), 60 per cent of respondents were internal auditors, whereas 19 per cent were audit internal division chairmen. There were five audit department managers in the sample banks. The findings reveal that 10 per cent of the sample practised audit duties, although their job titles varied (i.e. credit division chairman, financial chairman). From figure 6.5, SP=0.884 higher than 0.05 indicating non-significance, meaning that we cannot reject the null hypothesis that job titles are equal in all banks. This may indicate a lack in internal audit functions, which could be to the detriment of audit functions achieving their duties.

Figure 6.5: Job Title of Audit Function in Libyan Commercial Banks



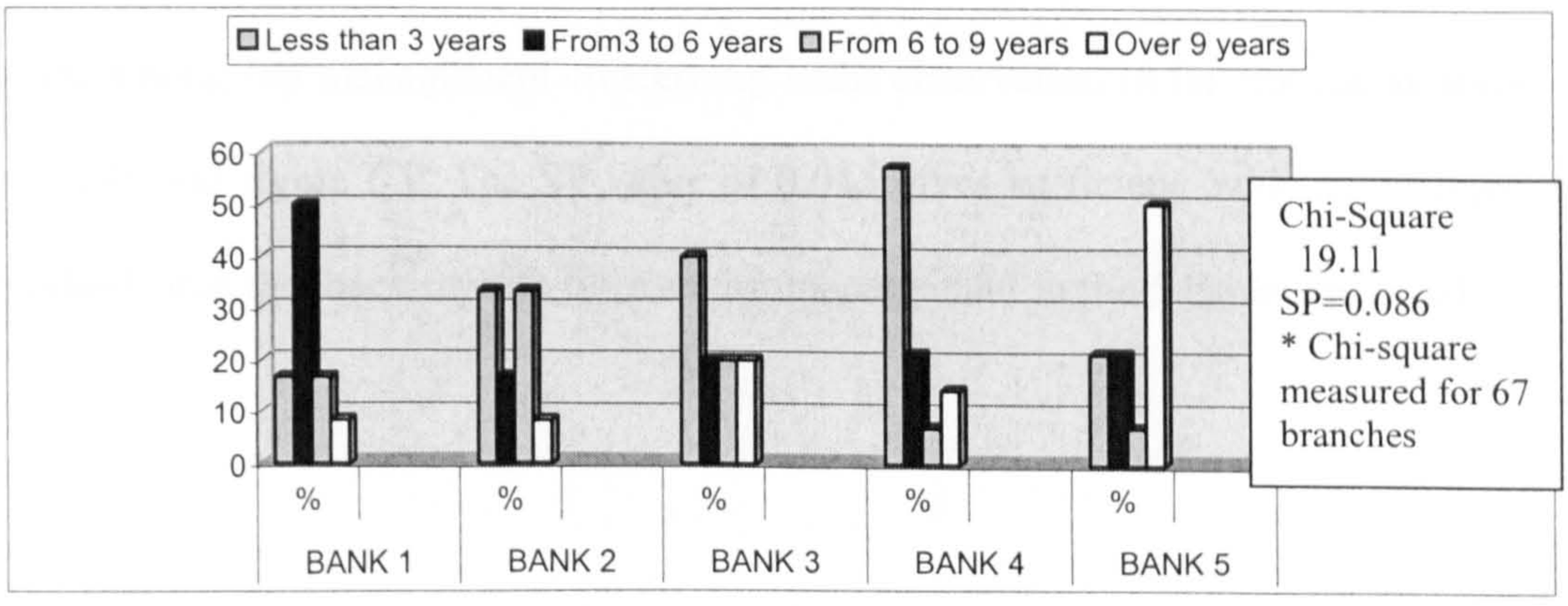
The questionnaire attempted to seek information on the qualifications of auditors in Libyan commercial banks. This may reflect the main role of educational level on internal audit performance. Figure 6.6 gives details of the respondents' highest qualifications (see table 6.2*). Surprisingly, the majority of respondents (49%) held higher diplomas. For instance, as individual bank the highest share were 73% and 64% in Bank 3 and Bank 4 respectively, while that of managers with masters degrees was 12% and 22% for other qualifications. The null hypotheses of equal groups of levels of higher education in the auditing function can be rejected since SP = 0.005 less than 0.05. This finding supports the idea that the internal auditors' qualifications are inappropriate in order to sustain them in carrying out their duties.

Figure 6.6: Higher Qualifications of Auditors in Libyan Commercial Banks



In terms of their experience in the auditing field, 34 per cent of the sample had less than 3 years experience. Respondents with auditing experience between 6-9 years and over 9 years represented 16% and 21% of the sample respectively. This may indicate a higher turnover of employees in auditing, which may affect their capabilities in conducting their duties as shown in table 6.3*. Figure 6.7 shows that the SP-value =0.086 (P>0.05) and consequently there is insufficient evidence to reject the null hypotheses that the mean of experience in the audit field was equal in all banks.

Figure 6.7: Experience in Auditing Field



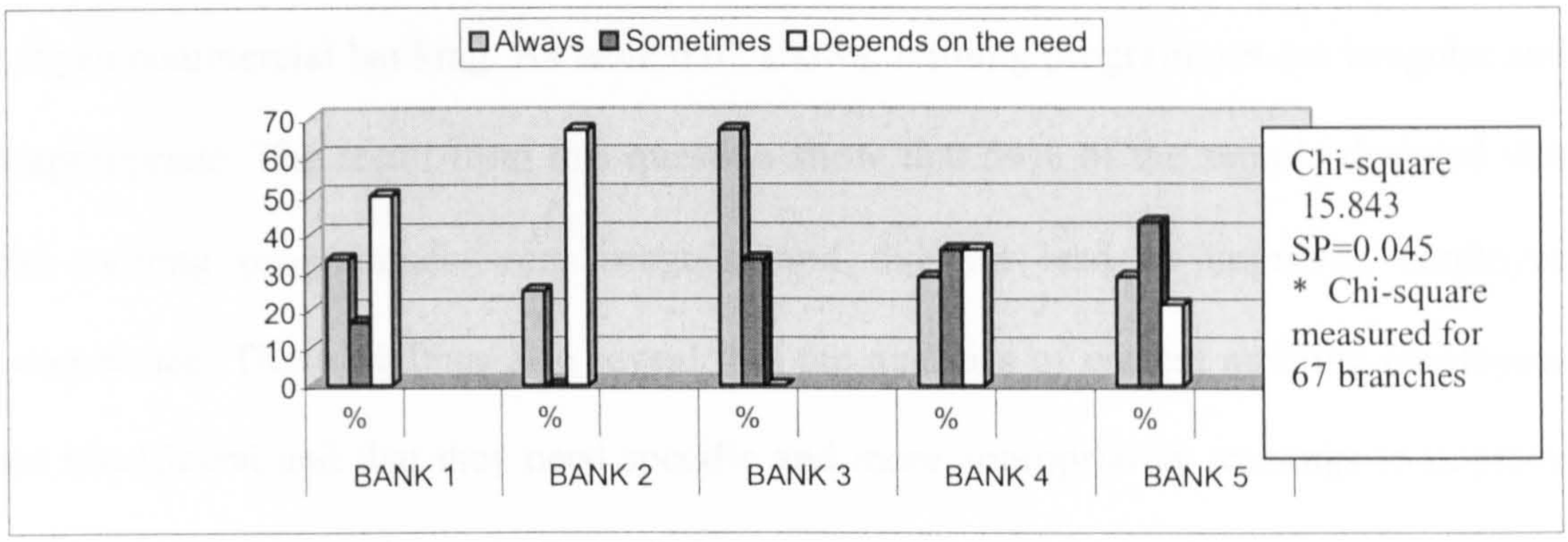
6.5.3.1.2 Audit Function

The questionnaire design aimed to describe the characteristic of the audit function in Libyan commercial banks, relating to control functions, reports, training programmes, and employee competence, as well as their understanding and implementation of international auditing standards.

Results show that the internal audit function in all banks manifested in departments as part of organisational structure, under general manager authority, and preparing monthly reports addressed to general managers in most banks of the sample. This situation may reduce the independence of audit functions. Responsibility for the audit function in most developed countries is held by the chairman of the board of directors or audit committee. This situation gives the audit function more independence and power than other management levels.

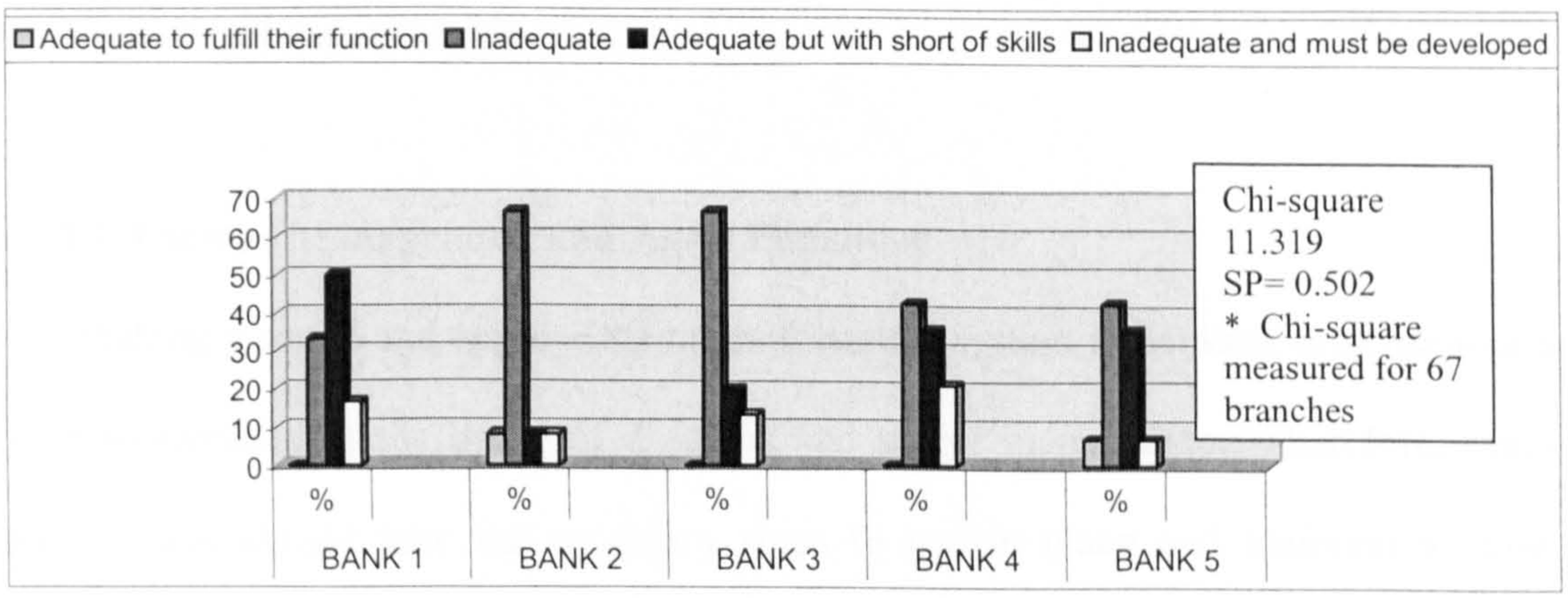
Regarding feedback from reports, 37 per cent of respondents declared that they always received feedback from top management. Of the remaining 63 per cent, 27 per cent answered sometimes, and 33 per cent that it depended on need. This may reflect a lack of interest among top management concerning audit observation in its reports, as shown in table 6.4* and figure 6.8. The SP value of 0.045 gives sufficient evidence to reject the hypothesis that feedback reports from senior management in the 5 banks are equal.

Figure 6.8: Reports Feedback



Employee competence is considered as one of the main strengths of internal control, helping banking organisations to meet their objectives. The responses concerning employee competence showed that 51 per cent of current auditing employees were thought inadequate to fulfil their duties, while 30 per cent were adequate but with shortages of skills. The remaining responses were that they were inadequate and must be developed 13%, and 3% were adequate to fulfil their duties, as shown in table 6.5* and figure 6.9. The non-significance of the SP value means that we cannot reject the null hypothesis that the competence of current auditing employees is uniform among the banks.

Figure 6.9: Audit Employee Competence



Moreover, audit training programmes and auditor development is also insufficient in Libyan commercial banking. As table 6.6* shows, training programmes are irregular and inappropriate. The result from this question show that 54% of the sample declared that the training programmes were irregular and did not lead to improved employee competence. These findings also reveal that the qualities of current auditing employees are insufficient and that they need specific and more appropriately trainings to improve their competence, as shown in figure 6.9.

Auditing like other professions, has witnessed significant development, particularly in the last two decades and since the last declaration from Basel Committee in 1999. Responses questions 2.12-2.14 showed that audit staff do not pursue, adhere to or implement auditing standards while during performing their duties. The results show that the great majority of 85 per cent did not follow international standards. A staggering 85 per cent also did not comply with auditing standards in their practice, as shown in tables 6.7*-6.9*. This may reflect a lack in both top management and in the Central Bank of Libya in establishing and imposing these developments and auditing standard in practice. Furthermore, it may also be attributed to the poor quality of the current auditors in understanding those standards.

6.5.3.1.3 Senior Management and Audit Functions

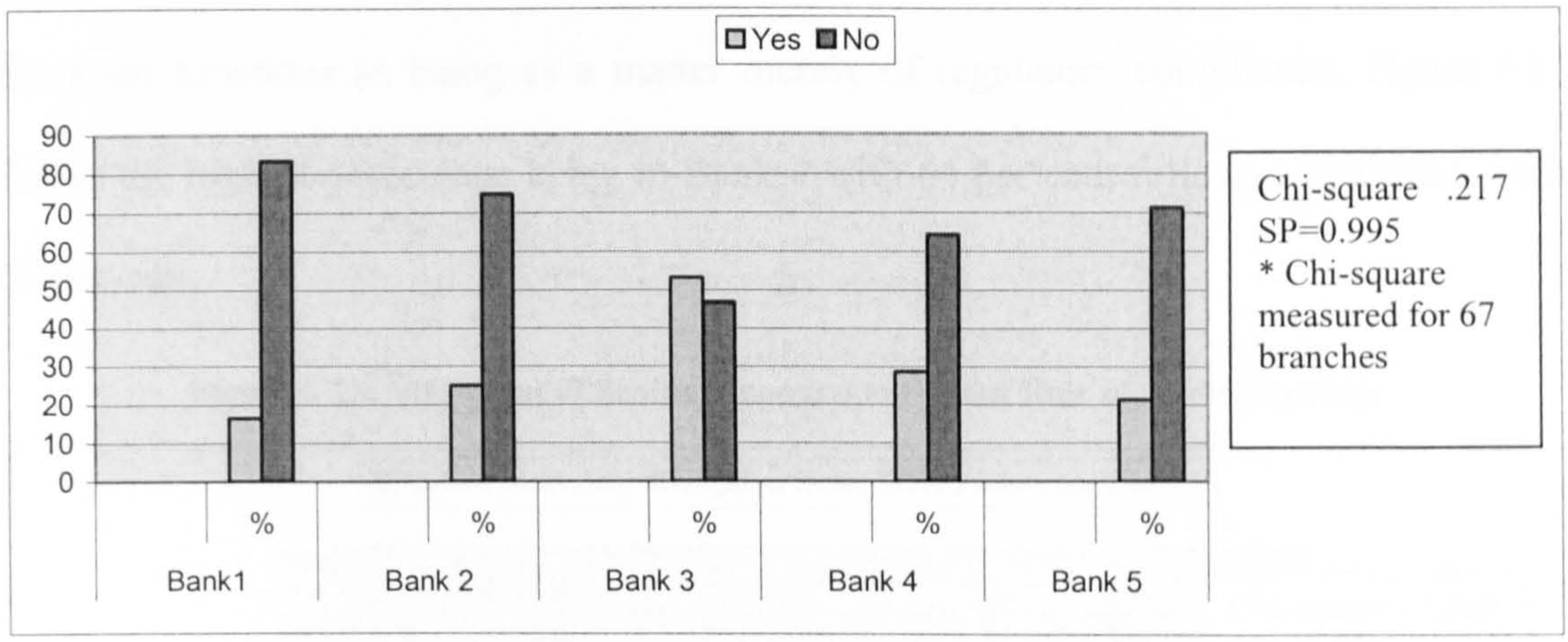
Establishing a sound and appropriate internal control system in banking organisations is the responsibility of the board of directors and senior management. Therefore, senior management should take the necessary steps to put in place and maintain a strong internal control system. The role of top management and its involvement in the audit

function has become very important in creating appropriate and sufficient frameworks for internal audit functions in banking firms. This is clear from the ever-increasing incidence of bank failure, the growth of competition among banking and non-banking organisations, as well as the increased attention given to banking efficiency in recent years.

Effectiveness and clarity in the structure of organisations and additional organisational flow-charts are the main keys to internal audit function. Last but not least, creating a proper written accountancy system is a crucial principle in sustaining the audit function in carrying out its duties. In order to investigate these points, therefore, further questions were asked in the questionnaire 3.1-3.3. The findings show that all banks have clear organisational structures and written accountancy systems, but they did not have additional flow-charts. This may disrupt the performance of audit functions. So, senior management should avoid this weakness by preparing additional organisation flow-charts.

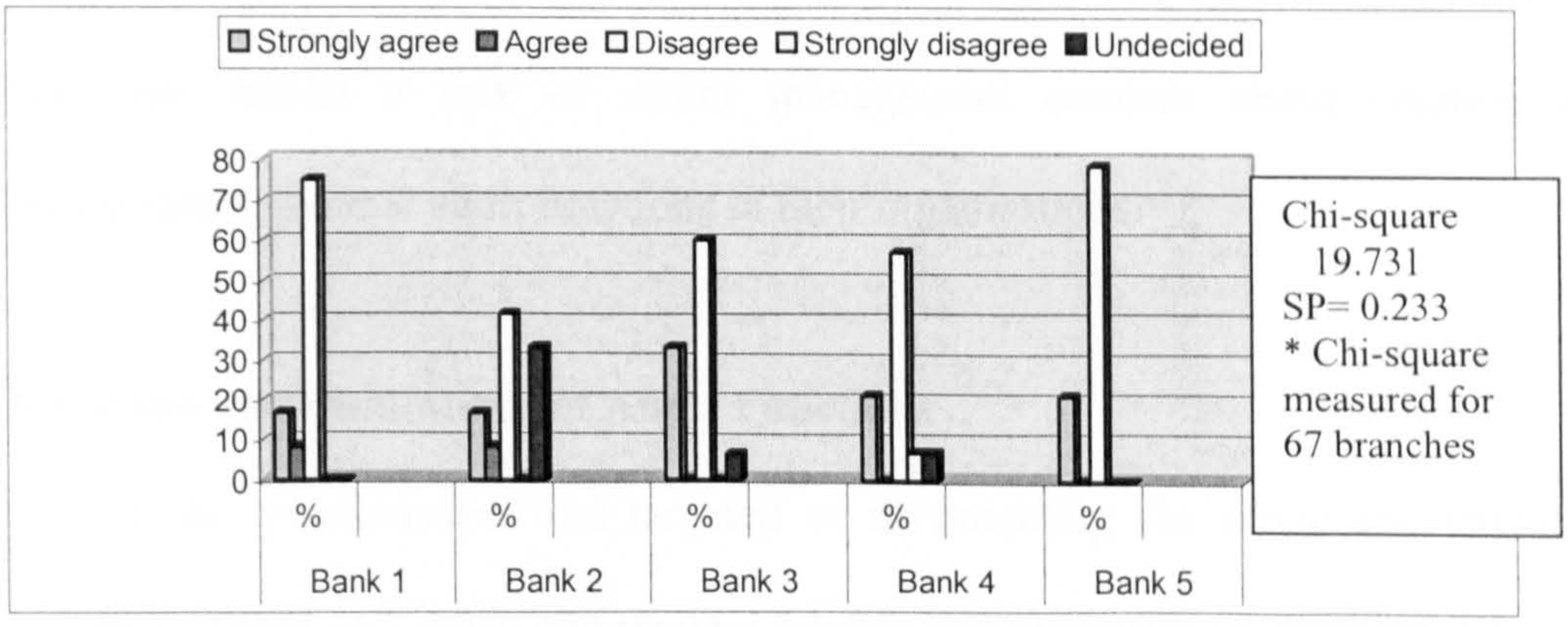
With regard to the determination of a framework and general policies concerning internal audit function, figure 6.10 shows that 67 per cent of respondents said that senior management failed to determine the framework for audit functions in the Libyan banks. This may reflect the lack of attention of top management to these functions, since they are supposed to have full responsibility for setting up such policies. In terms of individual banks, the highest percentage of the respond was 83% in Bank 1, followed by Banks 2, and 5 with 75 per cent and 71.4 per cent respectively and Bank 4 with 64.3 per cent.

Figure 6.10: Senior Management and Determination of General Policy of Audit Function



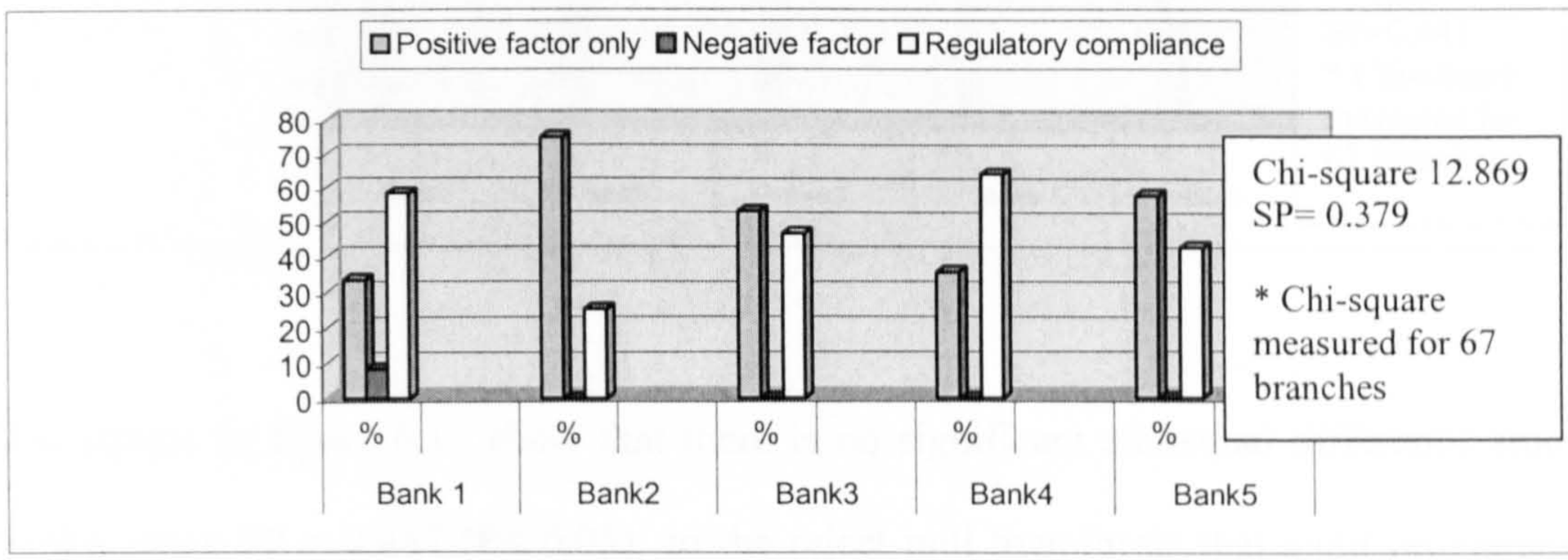
Similarly it was found that senior management were not thought to prioritise the importance of internal audit functions. The average percentage of disagreement among respondents in the sample exceeded 62 per cent: highest being in Bank5 and Bank1 with 79% and 75 %, respectively, as shown in table 6.12* and figure 6.11. There seems to be sufficient evidence here to support the null hypothesis of uniformity among banks in the determination of general policy concerning audit functions.

Figure 6.11: Senior Management and Importance of Audit Function



In response to question 3.8 regarding the views of senior management on the role of audit functions in banking firms, 48% of sample believed that top management treated the audit functions as being as a matter merely of regulatory compliance. Figure 6.12 shows the highest percentage being in Bank 4 with 64 per cent followed by Bank1, with 58 per cent.

Figure 6.12: Viewpoint of Senior Management about Role of Audit Function



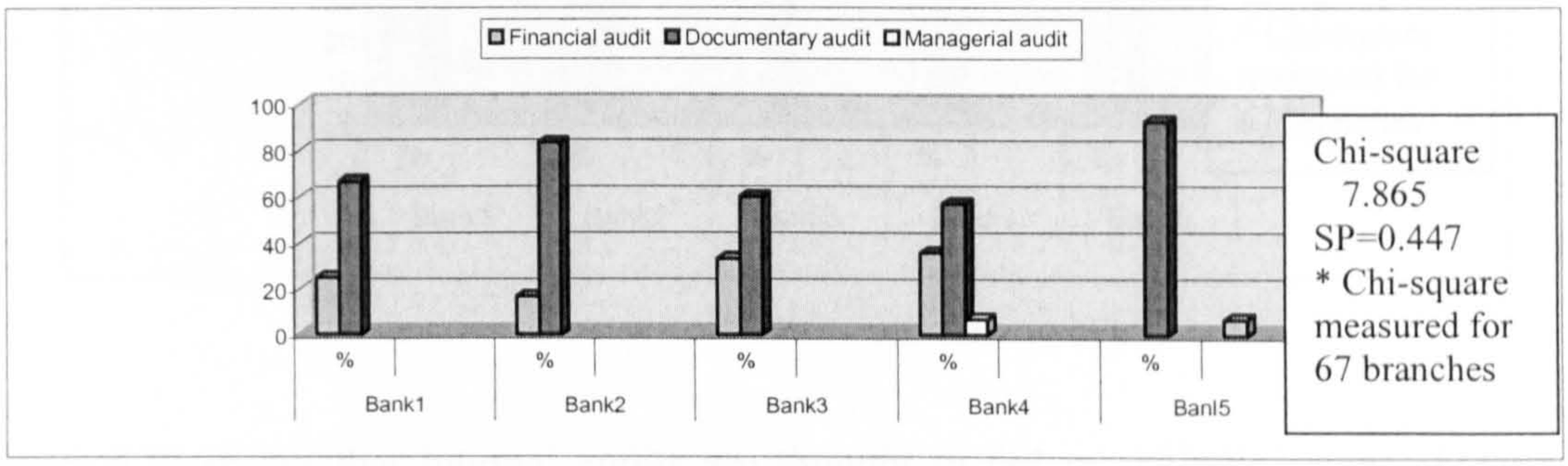
With regard to the role of senior management in the evaluation of audit functions over the last 10 years, table 6.14* shows that respondents from four banks did not believe that senior management had evaluated audit functions at all in the least 10 years. The percentages saying this were 71% in both Bank 5 and Bank 4, followed by Bank 2 (50 %). This may reflect a lack of senior management concern about creating and maintaining strong internal audit functions in their organisations.

6.5.3.1.4 Scope and Limitations of Audit Functions

Part four of the questionnaire was targeted to investigating the scope and extent of internal audit control in Libyan commercial banks. The responses to question 4.1 show that all commercial banks have internal audit programmes. On the other hand, these

programmes mainly concentrate on documentary audit (for example 93 per cent of audit programmes in Bank 5 focus on document audit). More details are given in figure 6.13 and in table 6.15* in appendix five.

Figure 6.13: Form of Audit Programmes



The results in figure 6.13 show that there is no significant statistical difference among banks, since SP = 0.447 (P< 0.05), so the reject null hypothesis that audit programmes are equal cannot be rejected. We can conclude that auditing programmes are regarded as less important as in developed countries. This may indicated are important limitation of audit functions in Libyan commercial banks. For instance, in developed countries, the role of audit functions have been extended to include all banking activities, using many programmes in order to allow banking firms to meet their objectives and to increase efficiency in banking organisations.

The responses to question 4.3 regarding the sufficiency of auditing programmes in sustaining audit functions show that the majority of respondents believed that these programmes were unable to sustain the audit functions in achieving their duties, as shown in figure 6.14. Further details are shown in tables 6.16* and 6.22*, confirming that the audit functions were not thought to achieve their objectives properly.

Figure 6.14: Sufficiency of Audit Programmes

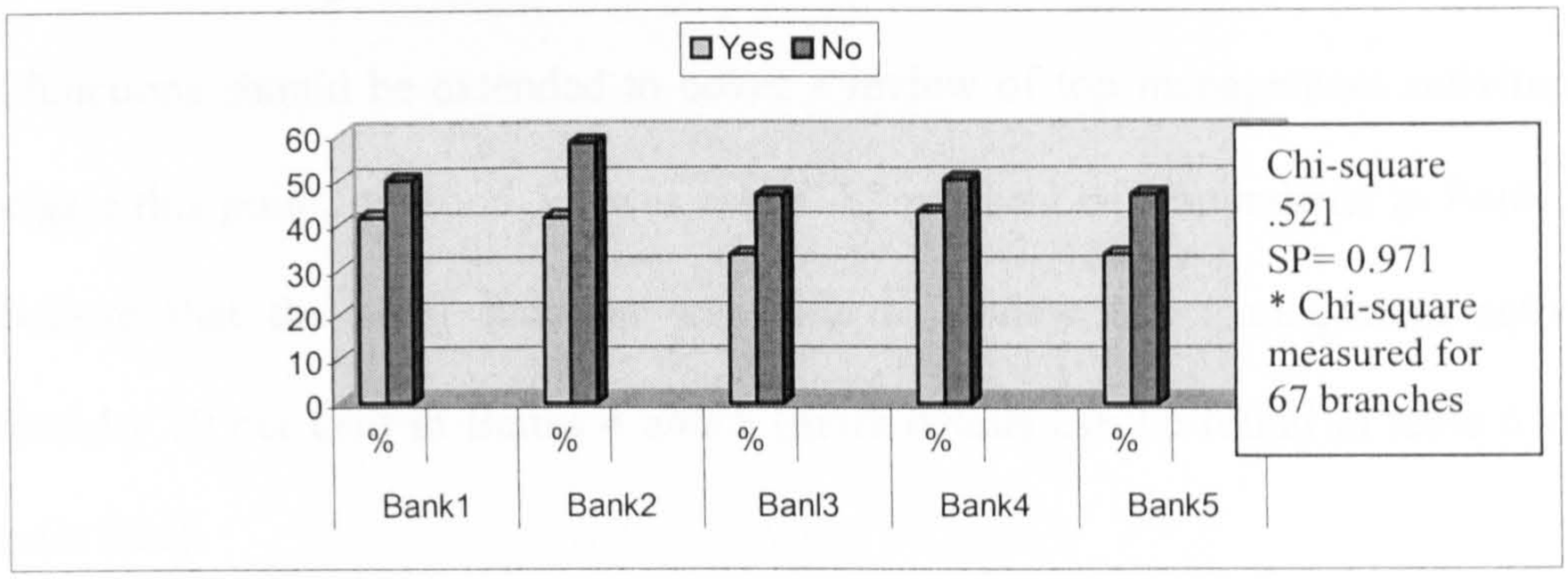
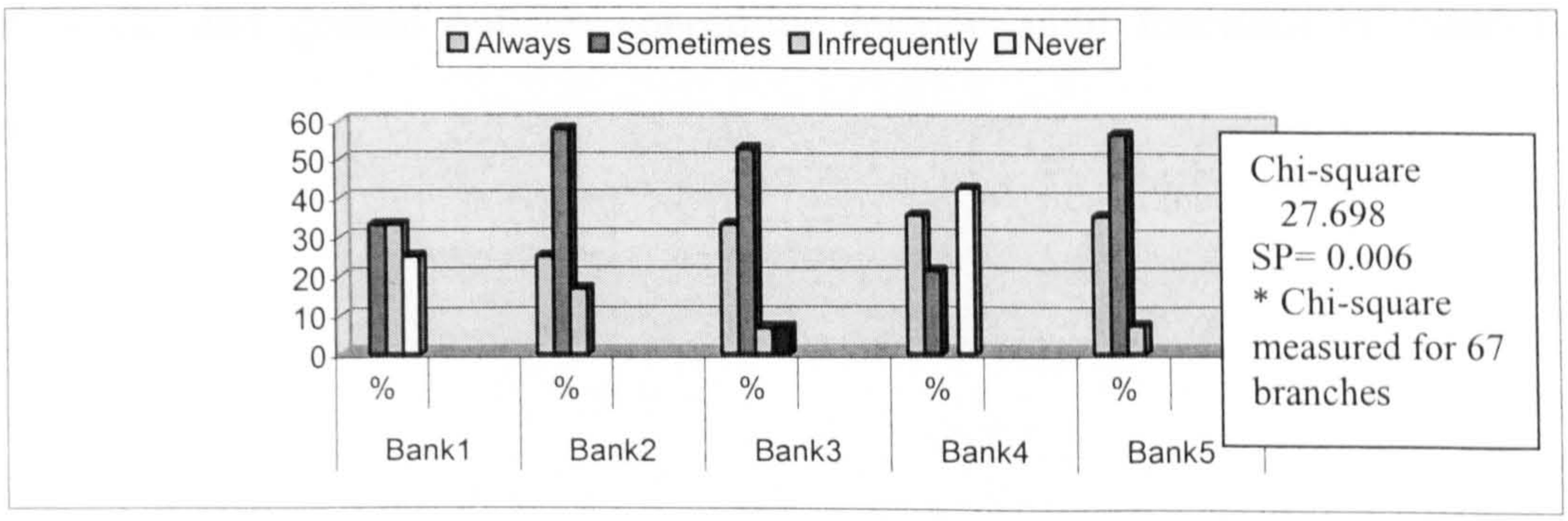


Figure 6.15 shows that internal audits are thought to fail in achieving their objectives. The findings show that less than 27 per cent of the sample believed that internal audit always succeeds in achieving its duties. The highest proportion was only 36% for Bank 5 and 4, followed by 33% and 25% in Banks 3 and 2 respectively, as shown in figure 6.14 and table 6.22*. In order to investigate the success of audit functions, the Chi-square statistics was calculated to see if there was any association among the sample. The result shows a Chi-square value of 27.698 with an SP of 0.006, being les than 0.05, indicating rejection of the null hypothesis as shown in figure 6.15. It must be concluded that the 5 banks have statistically different responses in terms of the achievement of internal audit functions.

Figure 6.15: Achievement of Internal Audit in Libyan Commercial Banking

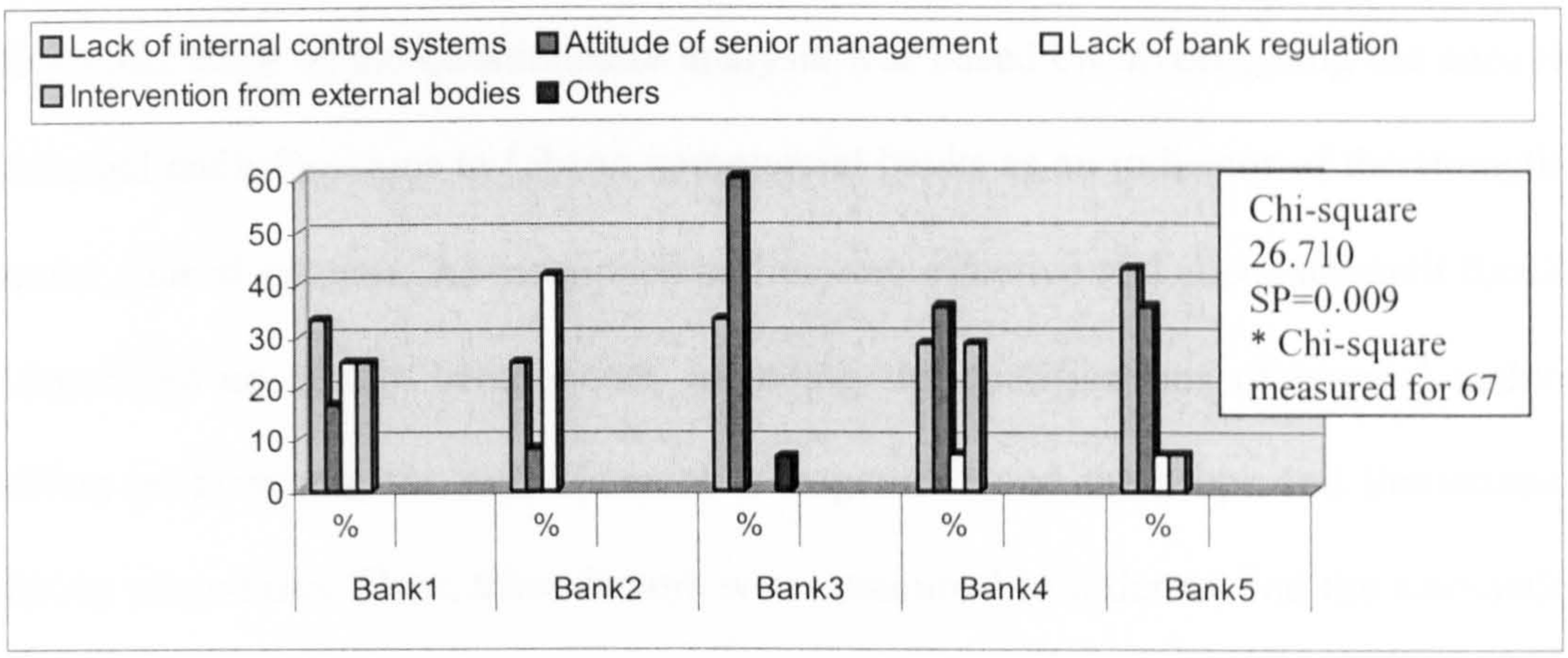


As mentioned earlier, all bank activities should be under internal auditing control to secure that all banking transactions are achieved adequately. For that reason, the scope of audit functions should be extended to cover a review of top management activities. To investigate this point, question 5.4 was asked. 87 per cent of respondents in Bank 3 did not believe that the audit function was able to review top management activities, followed by 79 per cent in Banks 4 and 5 (more details can be found in table 6.18* in appendix five).

The results in table 6.19* confirm the argument that the reality of internal audit functions in Libyan commercial banking only utilises traditional tools and does not succeed ever in the matter of routine procedures, and that risk management is not measured.

As G.A.O (1993) pointed out, the main responsibility of the central bank as the regulator and supervisor of banking organisation is to establish a sound and adequate internal control system by providing an appropriate framework for audit functions, in order to secure the soundness of banking operations. The results in table 6.21* show that the Central Bank of Libya has not played its role properly in providing an appropriate framework for audit functions, and that has led to different frameworks for audit functions being established by bank managements, and hence much confusion about the frameworks and general policies concerning internal audit functions in commercial banks.

Figure 6.16: Reasons for Corruption and Embezzlement Cases



The results in tables 6.23*- 6.25* show the significant role of internal control functions in discovering cases of corruption and embezzlement. On the other hand, increases in such cases may reflect the lack of internal control procedures to avoid these cases rather than to discover them. The results in table 6.25* confirm the lack of internal control in Libyan commercial banks. Question 5.10 concerned the reasons for cases of corruption 33 per cent of respondents referred to lack of internal control, and 33 per cent of corruption cases were attributed to the attitudes of top management. The remainder were explained by the lack of banking regulation, and intervention from external bodies. To test these results within the sample the Chi-square statistics was used in order to test null hypothesis (all reasons of corruption among groups are equal). The value of SP= 0.009 ($P<0.05$) suggests that the null hypothesis can be rejected. This result confirms the present analysis that internal control systems in the Libyan commercial banking sector are inadequate and insufficient in carrying out its objectives as shown in figure 6.16.

6.5.3.2 Evaluation of Internal Control Components

The second stage of the questionnaire analysis was based on investigating the adequacy of internal audit functions in Libyan commercial banks as an indicator of the strength of internal control systems. As mentioned earlier, any effective and adequate audit function is dependent on certain components, including the qualifications of internal auditors, auditing programmes, the role of senior management, and the scope and limitations of auditing procedures. Thus, these factors were examined in order to find the associations between them in each bank, reflecting the strength of internal audit functions.

1) In order to investigate the qualifications of internal auditors in Libyan commercial banks, 4 associations were selected. In general it can be seen that the qualifications of internal auditors in the 5 banks were inadequate. For individual banks, banks 2, 4, and 3 offered higher quality attributes than bank 1, while bank 5 has poorer quality in the qualification of its internal auditors, as shown in table 6.14.

Table 6.14: Auditor Qualifications

Association and correlation	Bank1	Bank2	Bank3	Bank4	Bank5
	Chi- Square	Chi-Square	Chi-Square	Chi-Square	Chi-Square
Education *VS* Employees competence	0.478	0.944	0.003*	0.291	0.107
Employees competence *VS* Training programmes	0.109	0.079	0.756	0.151	0.284
Employees competence *VS* Auditing programmes	0.0*	0.0*	0.588	0.0*	0.759
Employees competence *VS* Adherence of international Auditing standard	0.632	0.029*	0.0*	0.0*	0.885

*** Significant at P< 0.05 confidences level.**

2) An auditing programme is an indicator of a strong auditing system and is as important factor allowing the audit functions to meet its objectives. This factor may include all processes, procedures, bylaws, organisation structures, and written auditing and accountancy systems. As table 6.15 shows, 6 associations were calculated, aiming to test the strength of internal audit functions. From the results below it can be seen that, except for bank 3, all banks exhibit low statistically significance. This may, once again, reflect the weakness of audit functions in Libyan commercial banks.

Table 6.15: Strength of Audit Functions

Association and Correlation	Bank1	Bank2	Bank3	Bank4	Bank5
	Chi-square	Chi-square	Chi-square	Chi-square	Chi-square
A style of audit function *VS* Organisation Structure	0.753	0.0*	0.0*	0.727	0.0*
A style of audit function *VS* Additional organisation Charts	0.546	0.753	0.0*	0.420	0.923
A style of audit function *VS* Written Accountancy System	0.640	0.740	0.0*	0.001*	0.588
A style of audit function *VS* Does covers all activities	0.140	0.546	0.0*	0.662	0.923
A style of audit function *VS* Reviewing top management activities	0.428	0.217	0.0*	0.594	0.308
A style of audit function *VS* Measuring Risk management	0.621	0.740	0.0*	0.466	0.057

3) Boards of directors and senior management have an important role in establishing and maintaining strong internal audit functions in banking organisations, by determining the framework of general policy, and evaluating and reviewing the processes of audit functions. This may be used as an indicator to reflect the attention top management give to audit functions.

Table 6.16 shows that those 5 relationships were calculated in terms of testing the attention of senior management given to internal audit functions. The results show that only bank 1 has high significance for all 5 relationships, while bank 5 shows not significance. This result may reflect a lack of interest among senior management in audit functions.

Table 6.16: Attention From Senior Management

Association and Correlation	Bank1	Bank2	Bank3	Bank4	Bank5
	Chi-square	Chi-square	Chi-square	Chi-square	Chi-square
Who control *VS* Feed back form these reports	0.0*	0.179	0.138	0.021*	0.281
Who control *VS* Determination policies by top management	0.0*	0.632	0.635	0.025*	0.229
Who control *VS* Importance of audit f unction	0.0*	0.325	0.002	0.069	0.849
Who control *VS* Point of view of top management for audit role	0.0*	0.073	0.238	0.082	0.737
Who control *VS* Evaluation of audit function	0.0*	0.223	0.115	0.195	0.095

4) Finally, the effectiveness of audit functions is tested by measuring their achievements. Eight associations were used in order to judge internal audit function and their achievement of their duties. From the results shown in table 6.17, it can be seen that bank 3 has high significance while bank 1 shows poor performance in terms of audit functions and achievements. The remaining of banks are significantly lower in fulfil their duties. This may be attributed to a lack of internal audit function in Libyan commercial banking.

Table 6.17: Audit Function and Achievement its Duties

Association and Correlation	Bank1	Bank2	Bank 3	Bank 4	Bank 5
	Chi-Square	Chi-Square	Chi-Square	Chi-Square	Chi-Square
Auditing achievement *VS* Scope of auditing	0.104	0.424	0.005*	0.019*	0.406
Auditing achievement *VS* Measuring Risk management	0.478	0.084	0.566	0.133	0.713
Auditing achievement *VS* Discovering corruption cases	0.564	0.206	0.044*	0.026*	0.713
Auditing achievement *VS* Organisation structure	0.231	0.0*	0.0*	0.014*	0.0*
Auditing achievement *VS* Written accountancy	0.478	0.632	0.002*	0.139	0.668
Auditing achievement *VS* Pursuit international development	0.478	0.027*	0.0*	0.081	0.850
Auditing achievement *VS* Adherence Intern- Auditing standard	0.231	0.274	0.0*	0.488	0.025*
Auditing achievement *VS* Training programmes	0.542	0.014*	0.543	0.0*	0.118

To conclude, the results in tables 6.14 to 6.17 reveal that the current internal control systems in Libyan commercial banks are insufficient to sustain bank management in meeting its objectives.

6.5.3.3 Measuring the Efficiency of Internal Audit Functions

As mentioned previously, some managerial factors cannot be evaluated by using data offered in balance sheets and income statements. Therefore, the questionnaires were used in order to appraise internal controls systems. This analysis is divided into three stages. The first stage considers and describes the aims in order to highlight the reality of internal auditing functions used in Libyan commercial banks. The second stage examines the components of internal audit functions as complementary to the descriptive analysis.

To complete the analysis, the performance of internal audit functions is examined by using the DEA technique. The average DEA efficiency score as shown in table 6.1 was used as a comparison with the DEA efficiency score in audit functions. The aims of this stage are therefore as follows. Firstly, the DEA technique is used for measuring and evaluating the performance of audit functions in the Libyan banking sector. Secondly, it provides a basis for assessing the performance of audit functions in the commercial banking sector to aid in comparative and efficiency evaluations. Finally, it investigates how DEA results can be interpreted and used in the management context.

Prior to carrying out this stage, it is necessary to define efficiency in terms of audit functions. Lampe and Sutton (1991) point out that

> *"Internal audit productivity is dependent on systemic conversion of inputs measured in terms of resource efficiency to outputs measured in terms of goal effectiveness by the system of internal auditing under consideration".*

They add that this "effectiveness" concept is based on focusing on the degree to which the goals and objectives of the audit process are clearly stated and accomplished.

The function of an internal audit has developed as a substantial element of management in both the private and public sectors. Due to its importance and its crucial role in management processes, it is thus essential that action be taken to ensure that the performance of internal audit functions reaches high quality standards. Here we focus on the measurement of the effectiveness of internal audit function in Libyan commercial banks in helping to ensure the achievement of the banking sectors' goals and objectives. It is assumed that measuring the performance of internal audit functions represents an

examination of the role of the internal audit in encouraging bank management to meet its objectives.

A search of the literature on internal auditing indicated that, with a few notable exceptions, little work had been done on the development of performance measures. Data envelopment analysis is a technique based on mathematical programming designed to address complex interactions and relationship between input and output variables when the relations between these variables are unknown or difficult to identify (Charens et al., 1989).

As mentioned earlier, one of the main and somewhat difficult issues in using DEA techniques is how to select input and output variables. This is even more difficult in this study with regard to the questionnaire design. To overcome this problem, the analysis below uses a statistical approach by using the means of input and output variables in order to measure the efficiency of audit functions.

Three factors from the questionnaire results are used as inputs, and two factors as outputs by calculating the means of these factors in order to transform the responses from qualitative to quantitative data. In order to measure the efficiency of audit functions in Libyan commercial banks, we used three inputs: (i) experience in the auditing field (EA), (ii) higher qualifications of auditors in Libyan commercial banks (QA), and (iii) the current competence of audit employees (CAE). Two outputs were used: (i) auditing reports (AR), and (ii) discovering cases of corruption (NCC).

6.5.3.3.1 Empirical Results

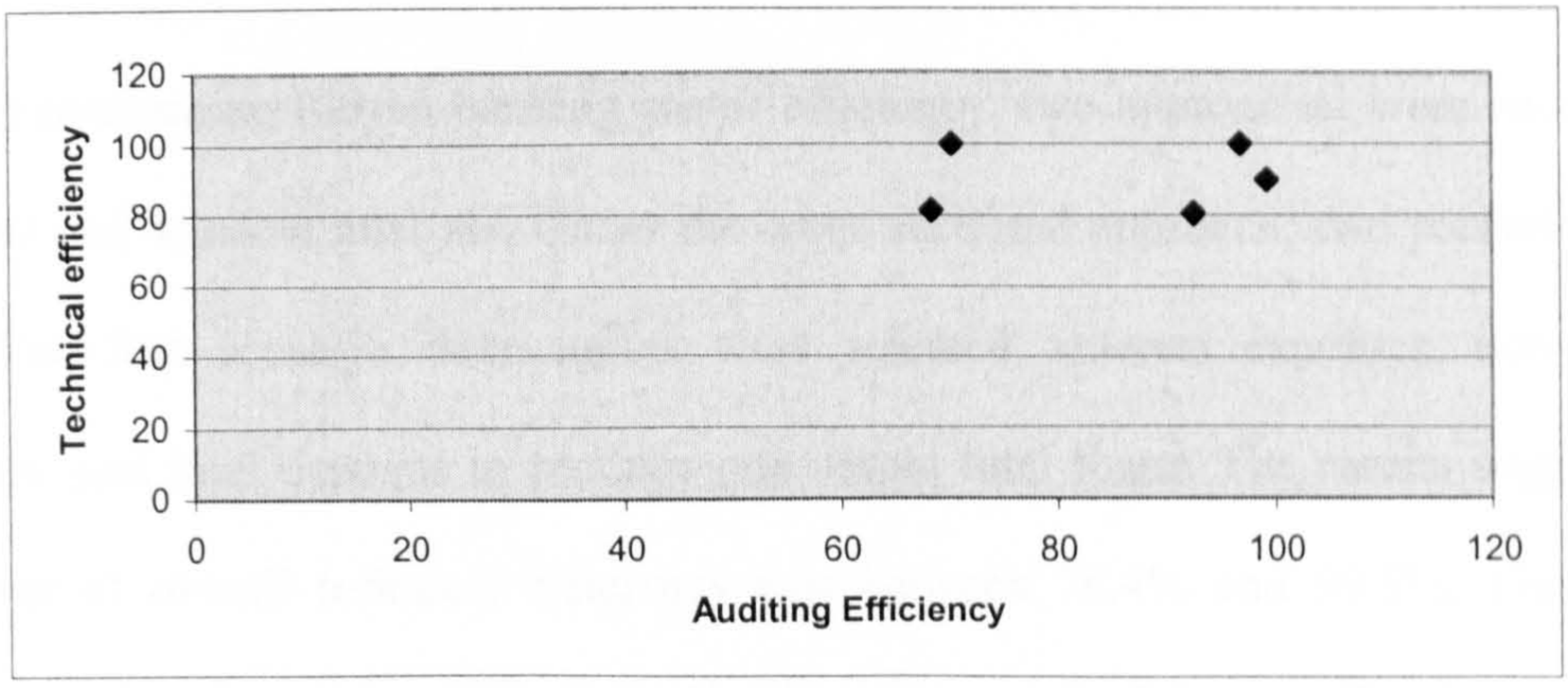
From table 6.18 it can be seen that banks were grouped in accordance with their efficiency scores under audit performance. Banks 3 and 4 were the most efficient banks in the sample, followed by bank 1 (90.0 %), while the less efficient were banks 5 and 2, recording efficiency scores of 80.4% and 81.4%, respectively.

Table 6.18: Efficiency Scores of Libyan Commercial Banks

	Bank1	Bank 2	Bank 3	Bank 4	Bank 5
Efficiency Performance*	99.2	68.40	70.30	96.80	92.5
Efficiency of Audit Function	89.97	81.41	100.00	100.00	80.41

*Efficiency score quoted from table 6.1

Figure 6.17: Scatter of Efficiency in Libyan Commercial Banking



These results indicate that internal audit functions in banks 5, 1 and 2 are less efficient in comparison with banks 3 and 4 in achieving their objectives. This indicates a failure of internal audit in sustaining bank management to meet their objectives. On the other hand banks with highly efficient audits also have high scores in technical efficiency. This might support our assumption that internal audit functions play an important and crucial role in helping banking organisations to achieve their objectives.

6.6 Summary

This chapter has been devoted to measuring and examining efficiency in Libyan commercial banks during the period 1980-2000. The analytical strategy was to divide the process into three stages. The first stage was based on measuring banking efficiency including overall technical efficiency, pure technical efficiency, and scale efficiency, by using both cross sectional and window analysis. The second stage to measured efficiency scores in conjunctions with financial ratios. The final stage was dedicated to a questionnaire study appraising the potential of internal control systems in Libyan commercial banks. This stage was itself divided into three areas: descriptive analysis, examination of the strengths of internal audit components, and finally the measurement of all efficiency of internal audit functions by using the DEA technique.

In order to examine Libyan banking sector efficiency, two approaches were used: cross sectional and window analysis. Under the cross sectional approach, two scenarios were used. The first scenario three inputs were selected; interest expenses, non-interest expenses, and total deposits to produce one output total loans. The results suggest that the range of overall technical efficiency was between 76.4% and 99.5%. The results show that for the entire period the banking sector in Libya suffered from scale inefficiency. This means that most Libyan commercial banks did not operate at constant returns to scale and that technical inefficiency was the main contribution to scale inefficiency. The second scenario attempted to examine the capability of managers to reduce costs and generate profits. However, the results show that efficiency scores were higher under scenario 1.

On the other hand, in the window analysis, the efficiency levels of the Libyan commercial banks reveals that there has been a general trend in average overall efficiency levels over the period under study from 73.5 per cent in window 3 the highest level of 93.24 per cent in window 14, and then down to 85.78 per cent in window 17.

In order to examine the impact of reforms policy on banking efficiency by using the window analysis approach, the period of study was divided into three sub-periods. The results indicate that the banking efficiency score was lowest at 70 per cent for the first sub-period, which is characterised as involving severe government intervention. Efficiency score increased by the third sub-period to a record of 89.15 per cent indicating a rather a small impact of reforms policy on banking efficiency.

Considering the size of non-performing loans, scenario three was employed in order to investigate the impact of non-performing loans on banking efficiency. The results reveal that efficiency scores declined slightly due to non-performing loans, from 85.4 per cent to 79.8 per cent.

To avoid the caveats of the DEA technique, DEA scores were combined with the results of 16 financial ratios. This stage of the analysis aimed to classify banks into three groups of high, medium, and low efficiency in accordance with their DEA efficiency scores. The findings suggest that banks with higher scores in DEA efficiency also have higher ratios in capital adequacy, assets utilisation, and liquidity. In contrast, they have lower ratios in asset quality and profitability. Moreover, all groups appear to have had a significant

fraction of non-performing loans, reflecting the inadequacy of credit policy in Libyan commercial banks due to the government intervention of the 1980s.

Stage three was dedicated to a questionnaire survey examining managerial aspects. In terms of descriptive analysis, the findings suggest that internal audit function seems to be weak in all commercial banks. For instance, the results show that 49 per cent of auditors in the sample only held higher diplomas, reflecting low qualifications. Furthermore, 34 per cent declared their experience had lasted for less than 3 years, and 51 per cent from current audit employees were said to be inadequate in following their duties. Moreover, the questionnaire analysis reveals a lack of attention from top management to internal audit functions. For example, 48 per cent of respondents believed that the viewpoint of senior management towards audit function only relates to regulatory compliance. The findings reflect a lack of audit function' capabilities in meeting their aims. For instance, internal audit functions do not cover all bank activities, and particularly top management activities. In addition, audits functions are still dependent on documentary audit rather than using comprehensive audits similar to those in developed countries.

The second stage of the questionnaire analysis focused an examination the component of audit functions. Four groups were used, and the results reveal a lack of internal audit functions, supporting the hypothesis that audit function are unable to sustain bank management in meeting their objectives and in increasing productivity and efficiency in banking organisations.

Finally, in the third stage, audit efficiency was measured by using DEA technique. Results suggest that banks with higher DEA efficiency scores in banking performance also exhibit higher efficiency.

To sum up, it can be seen that the findings in this chapter should be treated as particularly useful for the Central Bank of Libya (CBL) and bank managers. The CBL can benefit from these results by choosing appropriate approaches in the bank regulation and supervision in order to increase efficiency in the Libyan banking sector, as well as to recognise the weaknesses of commercial banks in particular, and in the banking sector in general. For managers, these results point to effective tools in order to identify the main problems that may affect banking performance and audit functions. Moreover, these results offer evidence about banking efficiency in Libya and how efficiency can be increased.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDIATION

1.7 Summary and Conclusions

This study has examined the behaviour of the banking sector in Libya from 1970 to 2001, a period characterised by government control over the banking activities. During this period commercial banks in Libya witnessed fundamental changes and challenges, including Libyanisation and the nationalisation programmes, leading to the abolition of the private sector in 1978. These events affected the behaviour and performance of the banking sector in various ways. Therefore, the objectives of this study mainly focus on evaluating the performance of the banking sector, in order to highlight the main problems associated with commercial banks in Libya.

For an overview of the Libyan economy, chapter two reviewed the economic situation from 1951 until now, highlighting the main features of the Libyan economy and their influence on the banking sector.

In the early twentieth century, the Libyan economy depended on agricultural resources including barley, wheat, and dates, in addition to production in some basic industries such as shipbuilding and handicrafts. At that time Libya was an Italian colony and it can be seen that the monetary system and banking sector were integrated into the Italian banking system. By 1945 the Libyan banking sector and monetary system had broken

down, and all Italian banks closed. Consequently, Barclays Bank became the only operating in the field of monetary and banking business. As a result of this situation, various currencies circulated in the country, such as the Egyptian pound, French franc, Italian lire, and Military Authority lire.

This situation has been significantly changed since oil was discovered in commercial quantities. The country has moved from a deficit to a surplus economy. Consequently the GDP and per capita income increased. In addition, oil exportation has provided Libya with considerable foreign currency, which affected the Libyan banking sector leading to the availability of credit.

Oil revenues have given the Libyan government enough funds to enable it to play a major role with regard to the development plans. This encouraged the Libyan government to establish an independent monetary authority, taking advantage of the new economic situation following the oil discovery. Initially, banking law No. 4 of 1963 was issued in order to establish a Libyan banking sector. Subsequently the government introduced a programme of Libyanisation aiming to encourage the contribution of the local people to the banking sector to become at least 51% for Libyan investors and 49% for foreign investors. This process was completed in 1969 when the new government introduced both the nationalisation and Libyanisation programmes, establishing the Central Bank of Libya and five commercial banks, and other specialist government-owned banks. The objectives and goals of these banks were determined by general government policies on the one hand, and by the requirements of the development plans on the other hand. These events have affected banking performance. For instance, banks

became channels to offer credit to the public sector at specified interest rates. However, in the late 1978 the economic system in Libya was transformed from a capitalist to a socialist system, which affected the banking sector in a sense that its resources mainly became part of the government funds, under the control of the public sector, forcing commercial banks to establish joint companies in order to participate in the process of economic growth without feasibility studies.

In addition, banking credit policy was expanded to encompass various sectors of the national economy, in order to direct the ever-increasing potentialities of commercial banks in the best interests of the national economy. So, for the first time, the services of commercial banks were extended to cover real estate loans to lower and medium income groups under certain conditions. In general, loans, advances and overdrafts were the most important components of total credit with respect to commercial banks in Libya, as these are the highest income yielding assets necessary for the banks to meet their investment financing requirements and the current expenditure of the productive system. During that time, the primary role of the banking system was to channel funds to other sectors, given the fact that efficiency and profitability were not being among the top priorities.

However, in response to the privatisation laws in the early 1990s, the Libyan government undertook steps to liberalise the financial system. The key step has been the promulgating of the new banking law No: 1 of 1993, which allowed private banks to be established. Hence, the first time since the nationalisation of the banking sector in the country, a private bank was opened in 1995, followed by 47 domestic Banks established between 1997 and 2001.

However, by the year 2000, there were 57 banks operating in the Libyan banking sector. Of these, of which 5 commercial banks were fully state-owned, and 47 domestic banks (Al-massarf Al-Ahley) opened between 1997 and 2000. Yet, at the top of the banking system was the Central Bank of Libya (CBL), which became responsible for the prudential supervision of banks and for performing other central banking functions. Commercial banks were the dominant institutions in the system, whereas specialist banks such as the Development Bank, Agriculture Bank, Investment and Real Estate Bank and Libyan Arab Foreign Bank were established for specific purposes. However, the first three of these banks were primarily engaged in extending medium and long-term loans using the government as their main source for funding. On the other hand, the Libyan Arab Foreign Bank was established to take charge of the Libyan investments abroad.

This study has revealed that some specific factors have aided the development of the banking sector, while others have impeded that development. These factors include those related to the prevailing economic and political conditions. For instance, the rises in the prices of crude oil, and the amendments introduced to the banking law have been reflected, to some extent, in the way in which commercial banking has developed. Furthermore, the abolition of the private sector and the adoption of a socialist system have affected banking growth by limiting loans portfolios to pre-selected public sector projects leading to the deterioration of banking assets in the long run by increasing the level of non-performing loans, which reached LD 1.5 billion in 1999.

As a matter of fact the banking sector always played an important role in any economy through intermediation between depositors and investors. However, the objectives of the

banking industry have undergone fundamental changes. So the banking function has become broader, product, and geographic markets have become much more integrated. Consequently, banks have moved to introduce new services, and therefore intensifying competition among banking firms and other non-banking institutions. As a result of expansion, growth, and competition banks have become more prone to the crises that eventually began in the early 1980s and continued into the 1990s in both the industrial and the developing countries alike.

Chapter three of this study has discussed that the banking crises have become a recurring phenomenon since the early 1980s. The reasons behind these crises could be attributed to the lack of prudential regulatory and supervisory frameworks, including lack of internal control systems, mismanagement, over-borrowing, over-lending, the growth of non-performing loans, government interference, and an inefficient institutional framework. All of these malpractices have lead to a decline in performance as well as inefficiency of the banking sector. Banking crises hit government budgets in many countries in the 1990s. For example, in Indonesia the government spent over half of its total GDP in order to restructure the banking sector. However, in this respect international efforts have been made by organisations such as the World Bank, Basle Committee, and the Group of 10 aiming at reducing the banking crises and at increasing the banking efficiency through the promotion of specific policies. These policies include strengthening the frameworks of banking regulation and supervision, privatising state-owned banks, removing interest rate controls, loan classification, and introducing robust guidelines on liquidity management, accounting standards, and basic internal control systems. However, various

countries have since adopted such policies to liberalise their banking sectors in order to improve performance.

From the literature review it emerged that loan quality is the most important factor in banking assets as an indicator for safety and soundness in banking organisation. Therefore, bank supervision may focus on loans in order to guide management in credit process by establishing the appropriate loan classifications.

In recent years, however, the importance of internal control systems in banking organisations has been increasingly recognised, particularly following the massive failures and losses associated with banking activities. Strong internal control systems play a crucial role in banking firms in securing safe and sound operations. They represent one of the main tools, which sustain management in meeting the bank's objectives and in reducing the uncertainty in the business through highlighting the potential risks facing the banking industry. The experiences of Malaysia and Saudi Arabia have shown that significant reforms and restructuring of banking sectors are possible through gradual application. These policies can be extended to cover both macro and microeconomic issues. The literature review of banking reforms has focussed on the fact that the success of banking reforms could be dependent on several factors, including the correct identification of banking problems, the selection of appropriate and applicable policies, and the careful sequencing and timing. Yet, it has become obvious that every experiment could be unique and could not be simply copied by other countries without consideration to the prevailing conditions of the two countries.

Libya returned to privatisation in the late 1980s, and consequently improved its banking sector both in terms of the growth figures in balance sheets, and in the introduction of a new banking organisation. However, the banking performance remained modest most of the time in the 1990s. The objective of chapter four has been to investigate the development of the Libyan commercial banking sector over the last three decades by analysing the growth of its assets and liabilities. In general, the growth of the total commercial banking assets appeared to have suffered severe fluctuations between 1970 and 2001. The ratio of the total assets to the GDP during that period had increased steadily recording 79.3 per cent at the end of 2001, and 53.6 per cent on average across the entire period. In general there have been some specific factors, which have affected the development of the banking system in Libya. For instance, the nationalisation programme launched in 1970 and the new banking laws introduced in the 1970s and 1990s, and the rises in the price of oil which increased the total revenue of the government. These were reflected in government expenditure, and led to sharp increases in government deposits. All of these factors have, in some cases, sustained but in other instances slowed down the development of the Libyan banking system as a whole. The government still has control over the banking sector and the high level of government intervention affects the commercial banks, prompting them to increase their credit and/or purchasing Treasury Bills and Securities (government tools).

The total credit rose consistently between 1970 and 2001 growing 62-fold during that period. Although overdrafts are often regarded as an unsecured line of credit with regard to the Libyan commercial banking, loans and overdrafts represented the highest share of total credit during the period 1970-2001, reading a maximum for the years 1999, 2000,

2001. This phenomenon may be attributed to many factors such as the new role of the banking sector featuring the contribution of this sector to the state economic policies by participating in the development plans through financing the trade and real estate sectors and other appropriate economic sectors. Another factor could be that the lack of money and the capital market had restricted the commercial banking sector in dealing with specific types of credit, limiting banking activities to short-term investments both locally and internationally. Moreover, the dramatic political change, following the introduction of socialism in 1979, leading to the abolition of the private sector the restrictions on private ownership, was another factor. Consequently, these severe measures have forced the banking sector to allow credit concentrating on the public sector. Also, the CBL control of the Libyan commercial banks has rendered them, in effect, to become departments of the CBL, introducing monopoly to the banking system.

To sum up, it can be seen that over the entire period 1970-2001, there has been a significant growth in the total credit. On the other hand, the quality of loan portfolios has suffered from increases in bad loans as a consequence of government intervention. This situation has lead to the deterioration of assets quality or even to the ultimate bank failures in the long term.

Time deposits have also developed markedly during the period under review, particularly representing deposits by government officials, growning eighty-fold during the period under review. This increase can be ascribed to rises in government deposits.

This study shows that over the entire period of 1970-2001, there has been significant growth in the Libyan commercial banks. Moreover, the research has highlighted many weak points, which may relate to lack of performance, including the following:

1) Compared to Malaysia and Saudi Arabia, Libya has a lower ratio of total assets to GDP; which might reflect the poor contribution of commercial banking to the GDP. Given this fact it has become unclear as to why the Libyan commercial banking has performed so weakly in mobilising resources, compared to other developing economies.

2) Furthermore, the ratio of money in circulation to the total money supply has represented over one-third during the period under review. This confirms the idea that the Libyan banking sector has not performed well to improve banking habitation. And last but not least, the CBL has become involved in both direct control and moral persuasion through directives issued and decisions made concerning commercial banks, which follow specific policies during the period under review. This situation might have caused some weaknesses regarding the activities of commercial banks, such as poor performance and the lack of a sound credit policy. Nonetheless, the current numerous bad loans represent a main problem for the banking sector.

However, recently the Libyan government has been willing to open up the country's doors for foreign investment in many sectors to adapt to the challenges imposed by globalisation. These policies aim at reforming the financial sector in general and at liberalizing the banking sector in particular.

In order to restructure and reform the financial sector and to liberalize the banking sector, the Libyan government, in 1989, permitted a return to private ownership through establishing small and medium-size companies such as farms, hotels etc. Since that time the Libyan government has moved to liberalise the different economic sectors by adopting policies that will enable individuals to contribute to the economic cycle, and introducing the necessary reform policies to improve the banking performance. Nonetheless the Libyan experiment has, so far, revealed that the banking reforms have been too slow and unclear in terms of the overarching framework, and the banking services are still under-developed. However, despite the reform policy, commercial banks in Libya are still controlled by the government, where both the regulators and the banks are subject to governmental guidance for purposes such as the channelling of funds to preferred uses as a means of supporting national economic development plans. This will pose serious problems to the banking sector such as the increased level of non-performing loans a situation that has led to the deterioration in performance and the instability of the banking system. Even when the initial banking reforms in Libya have started, however, banking development remains stunted, and the overall conclusion is that the reform policy has had little impact on banking performance.

However, financial ratios are commonly used to evaluate banking performance. Such tools are dependent on benchmark ratios that in some cases could be random, and which may mislead the analyst. Moreover these ratios do not work effectively when using multiple inputs and outputs. Therefore, this study aims to capture long-term performance in various aspects by measuring the efficiency of the Libyan commercial banking sector over the period 1980-2001. In an attempt to assess the overall efficiency of Libyan

commercial banks, this study has investigated the concept of efficiency in the banking industry by reviewing the methodology of Data Envelopment Analysis (DEA).

The DEA technique has become a common tool regarding the evaluation of performance. However, the main advantage of this technique is that no functional form is imposed on the data, and also there is no statistical noise, besides the mathematical programming associated with this technique will tend to measure the efficiency of DMUs by transforming inputs to outputs relative to its peers.

Moreover, Data Envelopment Analysis is a non-parametric methodology in which linear programming is used to measure the distance of individual banks from the more efficient or best practice frontier. As a linear programming technique it produces a best practices frontier composed of efficient Decision Making Units (DMUs), as initially developed by Charens, Cooper, and Rhodes (1978) to evaluate the efficiency of public sector non-profit organisation. Sherman and Gold (1985) were the first to apply DEA to banking. From that time a number of studies have applied DEA to measure the efficiency of the banking industries in different countries.

In order to eliminate potential errors resulting from the separate use of the tools, i.e. financial ratios and DEA technique, this study attempts to measure banking performance using the DEA in conjunction with financial ratios.

The major contribution of this study is the methodology used to measure the performance of the Libyan banking sector and the impact of the initial reforms policy. This

contribution is associated with the use of the modified DEA methodology to understand issues of performance and efficiency through the application of input oriented CCR and BCC models to the banking sector spanning a period of twenty-one years by using the two approaches of cross sectional and window analysis. Moreover, DEA has been used either in conjunction with financial ratios or with questionnaire data in order to appraise the potential and efficiency of the internal control systems.

The application of the DEA approach to the Libyan commercial banking sector shows that the average overall technical efficiency over the period of the study declined due to the impact of non-performing loans on banking efficiency.

On the other hand in order to examine the impact of the reform policies on the banking efficiency by using window analysis, three phases could be identified. The first phase has been characterised by a low banking efficiency score, indicating the massive government intervention in the banking system. On the other hand, the high efficiency score associated with phase three is strongly indicative of the impact of the reform policies on the banking efficiency, and yet generally speaking, these reforms appear to have had very little effect on the overall banking performance in Libya.

The findings of this study have revealed that most of the commercial banks in Libya do not operate at constant returns to scale and that technical inefficiency may be attributed to scale inefficiency. The findings show that very few banks exhibited decreasing returns to scale, and a large majority exhibited increasingly constant returns to scale. However, two-thirds of scale inefficient banks operate with increasing returns to scale, while one-

quarter operated with constant returns to scale. Therefore the majority of the banks were not operating at constant returns to scale, a fact that renders scale efficiency a major source of inefficiency in relation to the commercial banking system in Libya. This might be attributed to either the under-utilisation of inputs or the incorrect selection combinations of inputs rather than inappropriate returns to scale. So, the overall interest expenses emerge as the dominant source of inefficiency across the sample. These results suggest that managers might use DEA results to identify the presence of inefficiencies as well the specific areas associated with these inefficiencies.

This study has revealed that, on average, Libyan commercial banks have employed excessive resources for all types of input during the study period. However, from the results it becomes clear that until 1990, the percentage of over-usage of inputs increased steadily. This confirms the fact that commercial banks in Libya have been incapable of using the available resources in an efficient way. The results also suggest that the sources of inefficiency were both pure technical (managerial) and scale inefficiency (regulatory) DEA scores coupled with financial ratios show that banks with high scores for DEA efficiency also have higher ratios for capital adequacy, liquidity, and/or utilisation. On the other hand, they have lower financial ratios in asset quality, financial leverage and profitability. In the light of the analysis, banks with high efficiency scores were found to be more effective at the managerial level. All banks in three groups (high, medium, and low efficiency scores) appear to have had a significant fraction of non-performing loans, reflected in an inadequate loan allowance for loan losses. This factor would seem to provide clear support of the idea that Libyan commercial banking has experienced a lack of efficient loan policy due to the massive government intervention during the 1980s.

Furthermore, the above analysis shows that low efficiency scores may be explained by instability in credit policy. The findings also confirm that the Libyan banking sector experienced low profitability throughout the period under study. Finally, as far as the efficiency of internal audit functions in Libyan commercial banks is concerned, banks with higher technical efficiency scores also have higher scores for internal audit efficiency.

This study has made a significant contribution to the banking literature by measuring the impact of government interference with regard to banking activities in general and the banking efficiency in particular. The results of this study appear to have provided new insights into financial performance of banks not available to managers through financial statements and traditional financial ratios analysis. Moreover, DEA results give further information concerning the current efficiency level of the Libyan commercial banks and sources of inefficiency. Also, it provides information to mangers, policy planners and decision-makers of the banking sector in Libya including ways to improve the current efficiency level. Furthermore, managerial performance can be improved by identifying the best practices and worst practices associated with high and low efficiency, respectively.

In summary, the findings of this research may prove useful for the Central Bank of Libya (CBL) as well as bank managers. The CBL can benefit from these results by choosing the appropriate approach of banking regulation and supervision, in order to increase efficiency in the Libyan banking sector, and to recognise weak points in commercial banks in particular and in the banking sector in general. For managers these results give

effective tools with which they can identify the main problems that may affect banking performance and audit functions. Moreover, the results would provide a clear perspective of the potential problems that would likely affect the banking efficiency in Libya suggesting ways of improving that efficiency. The Libyan bank manager should find the findings of this study of potential use in identifying the extent of efficiency status and evaluation of their success or failure. This study may benefit policy makers in Libya in their attempt to improve the overall efficiency of the banking sector in the country to assess the degree to which domestic banks requiring reforms.

2.7 Recommendations

Although the results are satisfactory when it comes to banking growth and efficiency in Libyan commercial banks, some issues are worth stressing. The following recommendations, if taken on board, would enable the Libyan banking sector to improve its operations.

The most significant problems facing commercial banks in Libya in particular and the banking sector in general could be summarised as follows: 1) lack of performance, 2) the level of growth of non-performing loans, and 3) weakness in internal control systems, and 4) high liquidity.

Lack of banking performance could be attributed to the massive government interference as well as lack of a strong prudential banking supervision and regulation, coupled with the attitudes of the senior management, and the quality of staff.

Regarding the growth of non-performing loans, the Libyan government needs to strengthen its loan classification system and provision requirements in order to clear the balance sheets of commercial banks of bad loans in the first place, besides the enforcement of its banking regulation. Hence it is incumbent on commercial banks in Libya to classify loans in ways, which will match international standards. However, the current loan classification standards, introduced in 1997, are based on the borrower's past or the current financial performance. Yet, every bank should establish its own loan classification standard that reflects the past, current, and expectations of future financial performance of its borrowers. Furthermore, banks should be required to reclassify their current loan portfolio in order to solve the problem of bad loans.

However, the Libyan banking sector would require specific measures to improve its internal control systems. The auditing programmes currently used focus mainly on documentary auditing. The Central Bank of Libya should play a crucial role in establishing soundness and safety in the banking sector. Thus, commercial banks should have the duty to develop written systems of: prudent lending policies, appropriate loan documentation practices in their lending function, as well as adopt specific procedures for loan approval. Consequently, the Libyan commercial banking system should first establish an appropriate internal control system including adequate organisational measures, which would distinguish between the boards of directors, the management executives, and the internal auditors. In addition, adequate administration procedures need to be set up via job description, besides improving their lending policies to match international standards and, establishing the risk management standards.

The study shows that reform of the banking sector had no significant effect on the use of cheques as a means of payments. The financial system remains cash-based with large liquidity outside the banking system. The excess liquidity outside the banking is also due to the lack of universal cheque acceptance by both the public and the banking system. However, the solution to this problem would imply the introduction of innovative banking products and services, such as Sika card and other pre-payment devices, that might reduce the excessive liquidity outside the banking sector and enhance the mobilisation of savings within the banking system.

Financial deepening would also be accomplished by the introduction of improved banking products such as Auto Teller Machine (ATM), credit cards, commercial paper, travellers' cheques, money orders, and other services that facilitate commercial transactions. Furthermore, the government should encourage the introduction of bank deposits insurance to ensure public confidence in the banking system

As a result of the government control of the banking system, there has been an inherent lack of both regulation and an adequate supervisory framework. It is clear that an effective framework of bank regulatory and supervisory system consistent with the international standards is more likely to address banking problems in a proper manner. Moreover, reform and/or restructuring cannot achieve its objective without comprehensive and robust programmes addressing both macro and micro levels.

In order to establish such system, Libya needs to implement reforms in the following areas:

a. Restructuring current commercial banks including, reconstitution and strengthening of affected banks' board of directors.

b. Reformulating banking objectives.

c. Strengthening internal control systems.

d. Enhancing the efficiency of the banking sector through more privatisation of banks by selling at least 30% of the shares of these banks to the private sector.

e. Commercial banks should improve their services by introducing new services and using new technologies to perform banking operations

f. In order to increase competition within the banking sector the Libyan government should establish new financial organisations including Islamic banks, and allow for domestic and specialist banks to practise commercial operations

g. Resolving the problem of non-performing loans by writing them off balance sheets of commercial banks, or by issuing Treasury Bills instead of these loans.

h. Other changes should include the upgrading of the managerial capacity and efficiency of under-performing banks through intensive staff training, and the provision of sufficient capital and liquidity to enable the troubled banks to operate in a self-sustaining manner after restructuring.

3.7 Limitations and Directions for Future Research

This study has several limitations, which suggest directions for future work.

Firstly, the study only assesses the efficiency in one type of banks in Libya, i.e. commercial banks. It may be more useful to assess the effect of the initial reforms policies on banking efficiency by applying the same methodology to the entire banking sector, including domestic banks, development banks, and private banks.

Secondly, this study has only measured efficiency by applying the DEA technique under the intermediation approach. One possibility for further research would be to conduct a comparative study which will incorporate both the production and the intermediation approaches.

Thirdly, of this study has mainly employed a non-parametric methodology in order to evaluate banking performance. It may be possible to evaluate banking efficiency and the impact of reform policies on banking performance by applying different frontier approaches i.e. a parametric methodology, and to compare the results of the different methods. This might provide an empirical identification of the impact of both government interference and the reforms policy on the banking performance in general and on the banking efficiency in particular.

Appendix one: The Evolution of the monetary policy

A1.1 The evolution of the Central Bank of Libya and its role in promoting the Libyan currency

In the absence of a local banking system since 1942, there has been no effective monetary policy applied in the Libyan economy. Earlier in the 1940s and the 1950s a number of different currencies had been in exchange in the country, such as the Egyptian pound in the East of country, the French Franc in the Fezzen region and the currency in circulation in Tripolitania was Military Administration Lire.

According to Pelt (1970), based on the report of a study concluded in the early 1950s, it was noted that the first priority of the Libyan economy was the establishment of a banking system and a stable currency. However, political independence appears to have overshadowed this economic objective. After independence in 1951, a currency commission was established according to the Libyan currency Law No.4 of 1951. The main aims of the currency commission being to define the functions of the monetary affairs department, the currency system and the investment of the state's accumulated currency reserves (Bank of Libya, 1967).

The first Libyan currency was issued in 1952, to replace the other currencies. The Libyan Pound was divided into 100 piasters and consisted of ten milliems. The National Bank of Libya was founded in 1956 to replace the Libyan currency commission maintaining close relationships with the Bank of England (Waddams, 1980).

The Libyan pound maintained its equivalence to the sterling until 1967, when it was devaluated for the first time, but continuing as a member of the sterling bloc until the end of 1971. In September 1971, the Libyan currency was changed from the Libyan pound to the Libyan Dinar (LD), divided into 1,000 Dirhams. The new currency came in 250 and 500 dirhams banknotes and 1, 5, 10, 50,100 dirhams (Waddams, 1980). The Banking law No.4 of 1963 gave the National Bank of Libya the sole right of issuing the currency rendering it responsible for maintaining the monetary stability and the external value of the Libyan currency and for regulating currency and credit.

In addition, the Banking law No.4 of the year 1963 tended to change the pattern by introducing a currency cover to about 90 per cent investment in sterling and the rest in dollar deposits. The gold cover; gold coins or foreign currencies, securities including Treasury Bills, which were issued or guaranteed by the Libyan Government and Treasury Bills issued or guaranteed by foreign governments as described in Article 31 in the new Banking law. The total currency in circulation rose from about 5.1 million Libyan pounds when the National Bank of Libya was founded in June 1956, to 38.1 million Libyan pounds at the end of 1966, with an annual average increase of 3.3 million Libyan pounds.

Nevertheless, the failure of the Libyan currency commission in the early 1950s in identifying the Libyan economy's demand for the sake of economic development had led to a series of problems in both the monetary system and financial sector. Furthermore, the total assets of the commercial banks rose from £L 4.05 million at the end of 1951 to £L 13.7 by the end of 1955, pushing the money supply to an unprecedented level of £L 9.9 million.

Therefore, the government would not be able to conduct its fiscal policy without creating proper monetary institutions, particularly an effective central bank.

The main reason for establishing a central bank was discussed in Government policy memorandum in 1954 emphasising the following points:

- *To hold government funds*
- *To manage the Libyan currency*
- *To control the Utilisation of foreign exchange rate and to supervise the country's balance of payments*
- *To act as a central clearing bank*
- *To control the over monetary policy and real control over the banking system.*
- *To investment the Libyan currency*

Subsequently, the National Bank of Libya was established in accordance with law No. 30 of 1955 commencing its official operations in Tripoli in April 1956, with the currency commission affiliated to the new bank.

A1.1.1 The National Bank of Libya: its evolution and role in the Libyan banking system

As has been previously stated, the National Bank of Libya was founded according to law No. 30 of 1955, incorporating 52 articles, regarding the regulation organisation of its operations. The main objectives of the National Bank of Libya, as declared under article 6 were:

> *"to regulated the Issued of bank-notes and coins to keep reserves with a view to maintaining monetary stability in Libya and external value of the Libyan pound, to influence the credit situation to the Kingdom's advantage and to act as banker to the government and to the provincial administration.*

Under this law the National Bank of Libya would undertake ordinary commercial banking business and also the duties of the Libyan commission of currencies. Yet, to meet those objectives, the bank was divided into two parts: the Issue Department,

and Banking Department, with the Bank of England as a conventional model. The authorised capital of the National Bank of Libya was one million Libyan pounds.

During the first decade following its establishment, the National Bank of Libya played an important role representing the government as a banker and as an adviser. Furthermore, the Bank of Libya has played an active role on all major government committees dealing with economic development, foreign trade, finance, and other domestic economic problems.

However, in the wake of the privatisation of the commercial banks in Libya, and the promotion of banking in the country, the desire to introduce the Libyans to the commercial filed has become intensified. Therefore, the government has come up with the suggestion that the Bank of Libya should undertake some limited commercial transaction such as, current account, and acceptance of deposits. Moreover many steps have been taken to extend the role of the Bank of Libya to accommodate the activities of the commercial banks as well.

In addition, the main objective for the National Bank of Libya, to supervise commercial banks and become the last lender resort without practicing that, led to its malfunctioning.

Although the main purpose of National Bank of Libya in entering the field of commercial banking was to assist in establishing other banking institutions yet, as has been concluded by its Third Report, the bank still enjoys a monopoly of power in this sector. To solve this problem, the first Banking law was promulgated in 1958, which consisted of twenty-three articles. It was very clear and has made some

important steps towards regulating the commercial banks. Under the new banking law, the activities of the commercial banks were more regulated such as Licensing procedures, capital, reserves, liquidity, credit policy, supervision, and duties responsibility. On the other hand, the Minister of Finance is made to hold the highest authority, and the National Bank has assumed an advisory role. To correct this situation the new Banking law was published in 1963. The Banking law No. 4 of 1963, was replaced the National Bank of Libya law No. 30 of 1955. This law included two three sections incorporating 84 articles all together.

However, according to the new law the name of the National Bank of Libya was changed to the Bank of Libya, and the Bank is now delegated the full power and authority of a modern Central bank. Its responsibilities included controlling the commercial banking sector as well as maintaining the monetary policies and the financial stability. As concluded in Article No 35 of the new law the control and supervision of the commercial banking has become more regulated (Banking law No. 4 of 1963).

In order to accomplish its first purpose, the Bank was adopted a policy to persuade the branches of foreign banks which were dealing in the country to register as Libyan firms, and to allowing not less than 51% of their capital to be shared by the Libyan nationals.

A1.1.2 The Central Bank of Libya: tools and rules on the economy

The banking system represents the cornerstone for the development of any economy. In general it consists of a central bank, commercial banks and specialised banks. The central bank is usually at the forefront i.e. in the position of the leader of the banking

system, with regard to its functions as defined by the law. Moreover, its main objective is the implementation of the general economic policies of the state, by using its own tools and instruments, in order to influence the behaviour of the banking sector and to ensure the proper implementation of the monetary policies through the control of the money supply (El-Jehaimi et al 1992)

The functions, precise duties and powers of the central bank vary from one country to another. In general central banks have common functions, which all must discharge, and functions are inherent in their objectives including, control and issue of notes and coin, control of the volume of credit created by banks, as an adviser to the government and banks and a lender last resort (Struthers and Spelight, 1986).

Yet, prior to discussing the evaluation of the central bank in Libya, it is very important to define the main functions of this institution in general. The Bank of International Settlement (BIS) defines a central bank as:

> *"the bank in any country to which has been entrusted the duty of regulating the volume of currency and credit in that country"*

Struther and Spelight (1986) quoted Sir Richard (1967) defining the central bank as:

> *"the central bank is organ of government that undertakes the financial operation of the government and by it conduct of those operations".*

Generally central banks are responsible for the implementations of monetary policies. Its main task is to manage and control the money supply in the country, which is considered as a vital role associated with the state economy (El-Jehaimi et al., 1992). As a government organisation, central bank has many important functions including the conduct and control of credit, determining monetary policies, and providing supervision on the banking activity. However, to accomplish these

objectives the central bank has the power and the authority under all circumstances to achieve the general economic objectives of the state, mainly to bring about economic stability through cooperation with the entire banking system (Struthers and Spelight, 1986).

A1.1.2.1 Development function of Central Bank of Libya

The Central Bank of Libya (CBL), unlike many other central banks, was not established for the specific purpose of carrying out the normal banking functions. However, at the present day, these functions are regarded as the main business of a central bank. Nonetheless, the Central Bank of Libya has developed gradually by adjusting and adapting itself to the changing conditions and circumstances, even though few phases have been involved in the course of this development.

As has been explained previously, the Bank of Libya commenced its operations following the publication of Act No 30 of 1955 concerning the establishment of the first Libyan bank under the name of "the Libyan National Bank" or (LNB) in short. Then Article 6 of the same Law outlined the general objectives of the new bank. These objectives included the regulation and issuing of the Libyan currency, the maintenance and the management of government reserves. However, in carrying out functions the LNB may change the discount rate, liquidity ratio and use the moral persuasion as tools for regulating monetary policies and controlling credit facilities. However, the LNB also dealt with branches of foreign banks in Libya. Since these branches remain under the control of their headquarters abroad, as a result the LNB was unable to implement its banking credit policies on the branches. Yet, to solve this problem, the new banking law was issued in 1958, which determined the capital requirement and liquidity ratio for commercial banks. Under the new Act,

commercial banks must maintain 20 per cent as reserves from the total liabilities in their cabinet. In the late 1950s and early 1960s, the Libyan economy witnessed dramatic changes following the oil discovery and the subsequent impacts on the economy in Libya. Under these circumstances, however, the banking Law of 1958 failed to cope with the new conditions of monetary and economic transformation. Consequently a new banking Law no 4 of 1963 came to being replacing the name of LNB by the name "the Bank of Libya" as well as providing the new Bank with the tools and authority to support, manage and implement the monetary policies in Libya (CBL, 2001).

Yet, the significant change might have been that of the liquid reserves ratio. Commercial banks should maintain reserves with the Bank of Libya without interest against their deposit liabilities. On the other hand, the Bank of Libya has authority-introduced charge on reserves from 10 % to 40 % on demand deposit and 5 % to 20 % on time and savings deposits. Thereby commercial banks become fully under the supervision of Bank of Libya (El-Jehaimi et al., 1992).

The emergence of law No 4 of 1963 represented the first step towards monetary reforms, where the central bank assumed its leading position regarding the organisation of the banking system, particularly with respect of the control and supervision of other financial institutions. Hence, for the first time the bank of Libya became capable of practicing its duties especially those of managing and controlling credit (bide, 1992). Nonetheless by the year 1971 the Bank of Libya had become a full fledged central bank representing the sole monetary authority in the country, following the enforcement of the banking law no 63 of 1971. According to the terms of this Act, the Bank of Libya has been given the authority to assume all the

functions of the Central Bank of Libya, given that the former has been reorganised into two departments i.e. the banking department and the issue department (El-Jehaimi et al, 1992).

The major function of a modern central bank is to help implement the government's monetary policy. However, besides this function the bank would undertake several other functions many of which were common to central banks. After the nationalisation and the replacement of the banking law by Act no 63 of 1971, the CBL in the course of its development has come to perform an increasingly diverse set of functions as well as to develop its relationships with the government and banking sector. The functions of the CBL could include activities such as the issuing of currency, representing the government, acting as the banker' bank and providing supervising to the banking sector.

A1.1.1.2 The Central Bank of Libya and its monetary tools

- ***1970-1990***

Prior to nationalisation, the CBL was unable to practice its authorities as a central bank, owing to the weakness of the banking law of 1958, as well as the obstacles, that followed the promulgation of the banking law no 4 of 1963. However, since its establishment under the terms of law 4 of 1963, the CBL has been successful in using some of the tools such as the requirement of reserves, liquid ratio and the determination of interest rates.

As has been mentioned earlier the Libyanisation and the nationalisation of the banking sector have lead to the transfer of all commercial banks into joint stock

companies wholly owned by the CBL. The following the promulgation of law 63 of 1971, the CBL became a full central bank.

Theoretically, all instruments of monetary policy are available in Libya (except for the open market operation) and they can be used to control and regulate the money supply and to influence the banking credit (Baryun, 1987). During the period 1970-90, the CBL was confined to the use of limited monetary tools. For instance in 1970 it reduced the liquidity ratio from 25 per cent to 15 per cent in order to facilitate the banking credit and to restrict the accumulation of funds, resulting from an increase in the level of liquidity ratio in banking sector. In addition, the definition of liquid assets has been changed since May 1970 to include cash money whether in domestic or foreign currency and demand and time deposits in both CBL and commercial banks. However, the 1980 witnessed another important decision taken by the CBL, which involved the fixing of the maximum limit for credit interest rates offered by commercial banks. This decision was related to the amendment of interest rates (CBL, 1980).

With the enforcement of law 63 of 1971, the largest banks in the country came under the full ownership of the CBL, whereas it held 51 % or more of the shares of the remaining two commercial banks. Consequently, the monetary policy has been working through moral suasion and by issuing directives regarding bank credits. Moreover, the facts that the directors of commercial banks are actually CBL appointees, and therefore considered as employees of the CBL, will greatly influence their status as decision makers.

➢ *1991-2001*

At the end of 1989, Libya witnessed many changes towards privatisation in many sectors where the government offered a limited degree of freedom to these sectors to practice private activities. Likewise to enable the banking sector cope with these changes in undertaking its responsibilities as a leading force of the economy in Libya, the government introduced the banking Act no 1 of 1993 concerning Banking, Currency, and Credit. The new Act mainly aimed at enforcing the monetary policies in the country (more details are given in chapter four).

Consequently, the CBL issued a new order in 1994 introducing some changes to the maximum limits for credit and interest rates offered by commercial banks. However, under the new order, these rates as determined by the CBL were as follows:

Deposits for less than one month (10 days 2.5 %; 10-30 days 3%)

Fixed deposits:

a) 1 month to less than 3 months 3.5 %

b) 3 months to under 6 months 4 %

c) 6 months to less than a year 5%

d) One to three years 5.5%

(CBL, 2001).

The main purpose of the above mentioned decision was to encourage commercial banks to look for better chances for investment rather than interests from deposits. In brief, the CBL is involved in the direct control and the moral persuasion by issuing directives and orders to commercial banks to follow up specific policies during the period over review. This situation might have produced some weaknesses in

commercial banks such as poor performance and lack of credit policy and the numerous bad loans that currently represent a main problem for the banking sector.

A1.2 The Monetary Policy

As we have already mentioned in the first section, the Libyan banking, and the monetary system had been an integral part of the Italian Banking and monetary systems. That system was broken down when the Allied forces defeated the Italians in 1942. Libya was still without monetary system until the establishment of the National Bank of Libya in 1956. The hope for the foundation of a modern monetary policy was delayed. The main reasons may be associated with the limited legal power, the highly undeveloped state of the money market and the absence of any coordination in activities at the various economic levels in the country.

The influence of the government on the monetary policy was very limited in the early days of independence. That was mainly due to its acute economic condition and heavy dependence on foreign aids. Moreover, due to the absence of any banking laws in regulating the banking sector, and maintaining the monetary policy, the government was unable to use effectively its available tools for monetary policy.

As noted in the previous subsection in this chapter, one of the main purposes for establishing the Bank of Libya was to enable the government to control the monetary policy in the country (Bank of Libya, 1967). All monetary policy tools are now available for use except for the limited open markets. The bank rate and reserve requirements were not used much during the whole period.

During the period from 1956 until 1963, however, there were only some very limited monetary tools available to the Bank of Libya. The main tools were the rate of discount, and certain controls over liquidity. Furthermore, the Bank had used its power of moral suasion in conducting its monetary policy. After the publication of its Third Report, the Central Bank of Libya began to collect various economic data in order to make a more regular and systematic analysis of the economic trends. The aim was to establish a sound monetary policy, aimed at providing advice to the government. In addition, the Bank was required to make a general review of its credit and monetary policy in relation to the question of resorting to the National Bank of Libya for borrowing funds. The answer to this question was that the local foreign banks were borrowing from their respective head offices to raise their liquid funds. Therefore, the National Bank of Libya would not be able to influence the credit activities in the country.

The government has adopted a new monetary policy after the nationalization and reorganisation of the banking system in the 1970s. The moral suasion and credit controls selected as monetary policy especially after the promulgation of law No 63 of 1971. As Baryun (1987) argued, the moral suasion and cooperation became easier because the members of the committee of the commercial banks were considered employees of the Central Bank.

Furthermore, the 1970s and the 1980s witnessed several decrees and regulations both in monetary policy and in banking policy. For instance, the fixing of the maximum limit for credit interest rate offered by commercial banks for deposits may be regarded as an important decision. (CBL, 1980).

APPENDIX TWO DEA MODELS

1- CCR

The CCR model assigns weights to each input and output, and it assesses the efficiency of a given DMU by the ratio of aggregate weighted output to the aggregate weighted input. Although input-oriented and output-oriented models calculate the same envelop surfaces, inefficient DMUs will be located at different positions in each model. Also, the following statements are valid, but the opposites are not necessarily valid.

1. If DMU is efficient in output-oriented CCR, then it will be efficient in input-oriented CCR
2. If DMU is efficient in CCR, then it will be efficient in BCC

Input-Oriented CCR

One of the most important of the ratio structures of CCR is to reduce multi-input and multi-output down to single-input and single-output. The ratio of this single-input and single-output provides an efficiency measure. This function is an objective function of DMUo and it can be written as the following:

$$\max_{u,v} h_0(u,v) = \sum_r u_r y_{ro} \Big/ \sum_i v_i x_{io}$$

This has been restriction that, for all DMU, output-to-input ratio should be less than 1.

Mathematical linear programming problem regarding CCR-input Ratio can be written as the followings

$$\max_{u,v} h_0(u,v) = \sum_r u_r y_{ro} \Big/ \sum_i v_i x_{io}$$

$$\frac{\sum_r u_r y_{rj}}{\sum_i v_i x_{ij}} \leq 1, \text{ for j=0, 1... n}$$

$$\frac{u_r}{i\sum v_i x_{io}} \geq \varepsilon, \text{For r=0, 1,....., n}$$

$$\frac{v_i}{\sum_i v_i x_{io}} \geq \varepsilon, \text{ For r=0, 1,....., n}$$

Here, u_r represents the weight of an output r, v_i represents the weight of an input i, y_{rj} represents the amount of output r of a decision making unit j, x_{ij} represents I of a decision making unit j, ε is a positive non-archemedian scalar. It should be noted that if (u^*, v^*) is optimal, $(\beta u^*, \beta v^*)$ is also optimal for $\beta > 0$.

Under the assumption that the sum of inputs is constant at I and the sum of outputs cannot exceed the sum of inputs, the following problem can be solved.

$$\max_{u,v} \omega_{0=} \sum_r U_r Y_{ro}$$

Subject to $\sum_i v_i X_{i0} = 1$

$$\sum_r u_r y_{ro} - \sum_i v_i x_{i0} \leq 0$$

$$u_r \geq \varepsilon$$

$$v \leq \varepsilon$$

$$i$$

This equation actually represents the dual equation of input-oriented CCR. Since this equation is a linear programming problem, primal equation of input-oriented CCR can be found by converting the above into a duality problem of linear programming. Then we have the following.

$$\max_{\theta.\lambda.S_r^+S_i^-} z_0 = \theta - \varepsilon\sum_r S_r^+ - \varepsilon\sum_r S_i^-$$

Subject to: $\sum_j \lambda_j y_j - S^+ = y_0$

$$\theta x_0 - \sum_j y_j x_j - S^- = 0$$

$$y_j, S_r^+, S_r^- \geq 0$$

Rewriting the above equations in the forms that are consistent with ones used to describe BCC and additive models will give the following equations. It should be noted that, unlike BCC models, the convexity restriction of ($I\lambda = I$) and u_0 don't appear in the equations.

Primal

$$\max_{\theta.\lambda.S_r^+S_i^-} z = \theta - \varepsilon.Is^+ - \varepsilon.Is^-$$

s.t $Y\lambda - S^+ = Y_0$

$\theta X_o - X\lambda - S^- = 0$

$\lambda, S^+, S^- \geq 0$

Dual

$$\max_{u,v} \omega_{0=} u^T y_0$$

s.t $V^T X_i = 1$

$U^T Y - V^T X \leq 0$

$-U^T \leq -\varepsilon.I$

$-V^T \leq -\varepsilon.I$

Output-Oriented CCR

By following the same logic as in Input-oriented CCR, we can find the following output ratio for CCR

$$\min_{u,v} \frac{v^T x_0}{u^T y_0}$$

Subject to: $\frac{v^T x_J}{v^T y_J} \geq= 1$ j=I,.....,n

$$\frac{u}{u^T y_0} \geq \varepsilon I$$

$$\frac{v}{u^T y_0} \geq \varepsilon \mathrm{I}$$

Again following the procedure as in input-oriented CCR, we have the following duality problem. Again it should be noted that the convexity restriction and u_0 do not appear in the equation.

Primal

$$\min_{\theta,\lambda,s^+,s^-} z_0 = \phi + \varepsilon.Is^+ + \varepsilon.Is^-$$

s.t

$$\phi y_0 - y\lambda + s^+ = 0$$
$$x\lambda + s^- x_0$$
$$x\lambda + s^- = x_0$$
$$\lambda, s^+, s^- \geq 0$$

Dual

$$\max_{u,v} q_0 = u^T x_0$$

s.t

$$v^T y_J = 1$$
$$-u^r y + v^T x \geq 0$$
$$u^T \geq \varepsilon . I$$
$$v^T \geq \varepsilon . I$$

2. BCC

BCC model distinguishes technical inefficiency from scale inefficiencies by estimating pure technical efficiency at the given scale of operation. There are two forms of BCC. Depending on whether the primary objective is to maximise the proportional increase in outputs or the proportional decrease in inputs, different projected points can be obtained. The latter is called "Input-oriented BCC" and the former is called "output-oriented BCC".

Input-oriented BCC

Input-oriented BCC tries to minimise the input given output. In other words, it tries to minimise the distance between DMU and efficient frontier through the responsiveness of input. Basic framework of input-oriented BCC is the following:

Primal

$$\min_{\theta,\lambda,s^+,s^-} z_0 = \theta - \varepsilon.Is^+ - \varepsilon.Is^-$$

s.t $Y\lambda - s^+ = Y_0$

$\theta X_0 - X\lambda - s^- = 0$

$I.\lambda = 1$

$\lambda, s^+, s^- \geq 0$

Dual

$$\max_{u,v} \omega_0 = u^T Y_0 + v_0$$

s.t $v^T X_0 = 1$

$u^T Y - v^T X + v_0 \leq 0$

$-u^T \leq -\varepsilon.I$

$-v^T \leq -\varepsilon.I$

$u_0 free$

It should be noted that a scalar variable θ appeared in primal equation. Here, θ is a variable that minimises inputs. θ is applied to every DMUs input variable in order to improve efficiency. Also non-archmedian constant ε appeared in both primal and dual equation. Input-oriented BCC is designed to minimise the range of scalar variable θ, and then movement toward efficiency frontier will be made through slack variables (s^+, s^-). In order to improve efficiency, θ will be applied to all DMUs, and the minimisation of θ will be allowed due to the existence of non-archmedian constant ε. In order for a DMU to be efficient, the following conditions should be satisfied.

1. $\theta^* = I$ and $s^+ = s^- = 0$
2. $w_0^* = z_0^* = \mathrm{I}$

Output-oriented BCC

Output oriented BCC concentrate on maximising outputs. Much like the name suggests, the focus of output-oriented BCC is to maximise outputs given inputs. Basic framework of output-oriented BCC is the given in the following set of

equations. ϕ in the primal equation is a scalar that maximises output and output-oriented is designed to maximise the range of ϕ.

Primal

$$\max_{\phi,\lambda,s^+,s^-} z_0 = \phi + \varepsilon.Is^+ + \varepsilon.Is^-$$

$$\text{s.t} \quad \phi Y_0 - Y\lambda + s^+ = 0$$

$$X\lambda + s^- = X_0$$

Dual

$$\max_{u,u,u_0} q_0 = u^T X_0 + v_0$$

$$\text{s.t} \quad v^T Y_0 = 1$$

$$-u^T Y + v^T X + v_0 I \geq 0$$

APPENDIX THREE WINDOW ANALYSIS IN LIBYAN COMMERCIAL BANKS

WINDOW ANALYSIS BANK 1

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	STDV
100.00	100.00	100.00	87.80	100.00																	97.56	5.456
	100.00	100.00	87.80	100.00	100.00																97.56	5.456
		100.00	100.00	100.00	92.36	86.32															95.74	6.217
			100.00	100.00	95.95	89.19	86.38														94.30	6.256
				100.00	99.94	90.63	89.50	93.64													94.74	5.007
					100.00	96.86	91.23	100.00	91.37												95.89	4.384
						100.00	96.76	100.00	91.37	90.97											95.82	4.448
							98.81	100.00	91.03	76.81	100.00										93.33	9.965
								100.00	91.03	76.81	100.00	82.96									90.16	10.301
									100.00	86.44	100.00	94.55	72.98								90.79	11.401
										90.15	100.00	100.00	73.31	89.82							90.66	10.914
											100.00	100.00	73.31	89.82	86.29						89.88	11.094
												100.00	97.58	92.69	89.22	75.54					91.01	9.609
													100.00	100.00	95.69	84.79	100.00				96.10	6.590
														100.00	95.69	86.34	100.00	87.37			93.88	6.660
															100.00	88.55	100.00	88.25	97.47		94.85	5.982
																86.39	94.55	80.62	96.22	86.08	88.77	6.485
100.00	100.00	100.00	93.90	100.00	97.65	92.60	92.54	98.73	92.96	84.24	100.00	95.50	83.44	94.47	93.38	84.32	98.64	85.41	96.85	86.08		

WINDOW ANALYSIS BANK 2

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	STDV
39.40	79.80	76.44	59.92	47.74																	60.66	17.570
	79.80	76.44	59.92	47.74	36.16																60.01	18.581
		82.91	60.03	47.74	38.59	37.93															53.44	18.745
			65.82	53.19	42.78	40.79	41.92														53.44	10.685
				60.46	45.17	42.53	43.56	39.26													46.20	8.262
					46.74	43.35	44.61	44.29	48.47												45.49	2.076
						47.90	49.36	45.43	48.47	48.56											47.94	1.499
							51.80	45.43	47.78	43.43	48.54										47.40	3.180
								45.82	47.78	43.43	48.54	78.59									52.83	14.534
									52.42	47.47	56.40	78.87	84.37								63.91	16.591
										51.59	58.15	75.93	77.42	100.00							72.62	18.943
											58.15	71.74	66.99	82.09	100.00						75.79	16.053
												90.18	92.81	94.74	100.00	92.23					93.99	3.731
													94.11	94.99	100.00	92.57	77.29				91.79	8.572
														91.88	100.00	88.60	73.44	81.00			86.98	10.189
															100.00	88.67	73.45	81.10	48.53		78.35	19.339
																88.14	73.38	80.36	48.90	56.83	69.52	16.320
39.40	79.80	78.60	61.42	51.37	41.89	42.50	46.25	44.05	48.98	46.90	53.96	79.06	83.14	92.74	100.00	90.04	74.39	80.82	48.72	56.83		

WINDOW ANALYSIS BANK 3

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	STDV
37.32	42.15	53.45	39.55	33.66																	41.23	7.510
	42.73	55.00	40.09	33.98	28.42																40.04	10.035
		66.29	44.88	40.76	37.68	35.13															44.95	12.472
			45.03	40.91	37.68	35.13	41.76														40.10	3.817
				41.95	39.16	36.50	43.39	44.11													41.02	3.159
					43.40	40.46	48.09	48.89	50.95												46.36	4.302
						41.77	49.65	50.47	52.60	56.18											50.13	5.314
							50.64	51.48	53.65	57.30	56.08										53.83	2.865
								51.48	53.65	57.30	56.08	48.36									53.37	3.590
									59.01	63.02	61.68	53.48	66.24								60.69	4.796
										69.07	67.60	58.61	72.6	85.99							70.77	9.947
											67.60	58.61	72.60	85.99	92.95						75.55	13.880
												58.61	72.60	85.99	92.95	99.64					81.96	16.450
													69.14	82.73	88.01	94.34	85.31				83.91	9.315
														82.73	88.01	94.34	85.51	90.90			88.30	4.531
															86.72	92.95	80.15	88.49	100.00		89.66	7.386
																88.82	76.58	79.54	95.55	100.00	88.10	10.045
37.42	42.44	58.25	42.39	38.25	37.27	37.80	46.71	49.29	53.97	60.57	61.81	55.53	70.64	84.69	89.73	94.02	81.89	86.31	97.78	100.00		

WINDOW ANALYSIS BANK 4

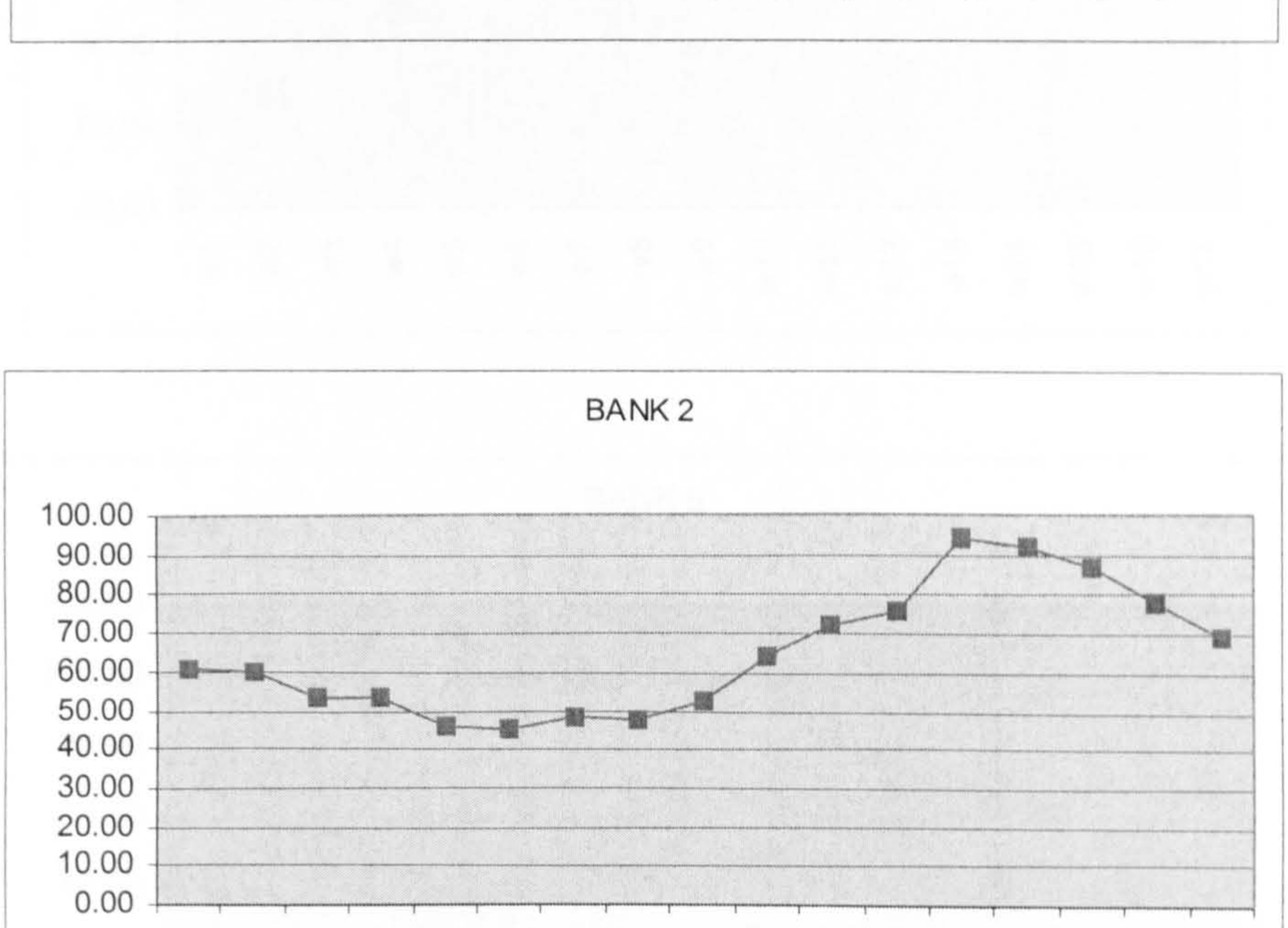
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	STDV
64.05	100.00	100.00	92.68	79.13																	87.17	15.482
	100.00	100.00	92.68	79.13	64.42																87.25	15.344
		100.00	100.00	100.00	82.57	72.30															90.97	12.882
			100.00	100.00	82.57	79.10	100.00														92.33	10.569
				100.00	100.00	87.75	88.24	100.00													95.20	6.578
					100.00	100.00	98.63	100.00	100.00												99.73	0.613
						100.00	100.00	100.00	100.00	100.00											100.00	0.000
							100.00	100.00	100.00	100.00	100.00										100.00	0.000
								100.00	100.00	100.00	100.00	100.00									100.00	0.000
									100.00	100.00	100.00	100.00	100.00								100.00	0.000
										100.00	100.00	98.12	100.00	100.00							99.62	0.841
											100.00	97.43	100.00	100.00	100.00						99.49	1.149
												100.00	100.00	100.00	100.00	100.00					100.00	0.000
													100.00	100.00	99.35	96.84	100.00				99.24	1.370
														100.00	99.61	97.30	100.00	100.00			99.38	1.176
															100.00	98.43	100.00	100.00	100.00		99.69	0.702
																100.00	100.00	100.00	99.30	100.00	99.86	0.313
62.00	100.00	100.00	96.34	91.65	85.91	87.83	97.37	100.00	100.00	100.00	100.00	99.11	100.00	100.00	99.79	98.51	100.00	100.00	99.65	100.00		

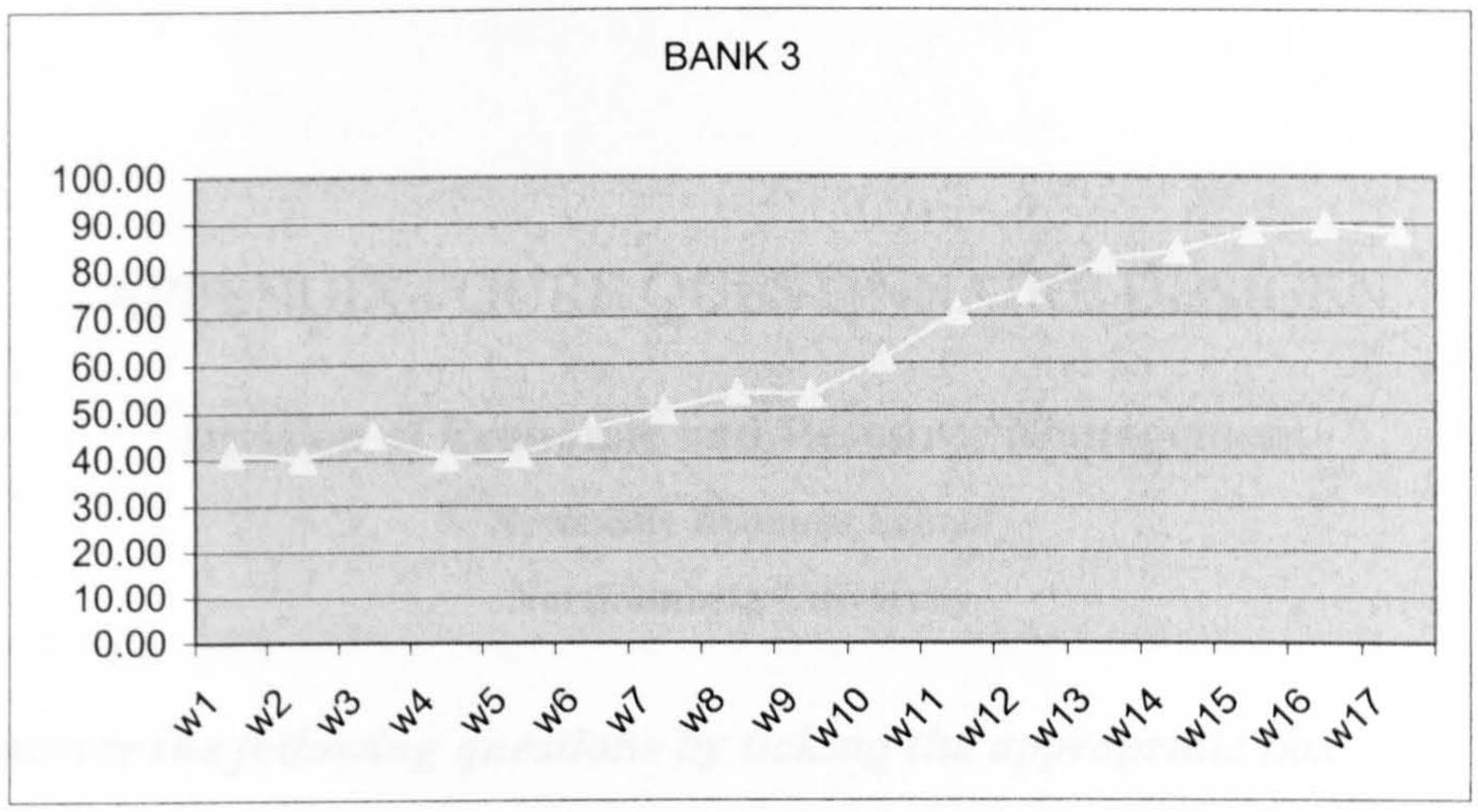
WINDOW ANALYSIS BANK 5

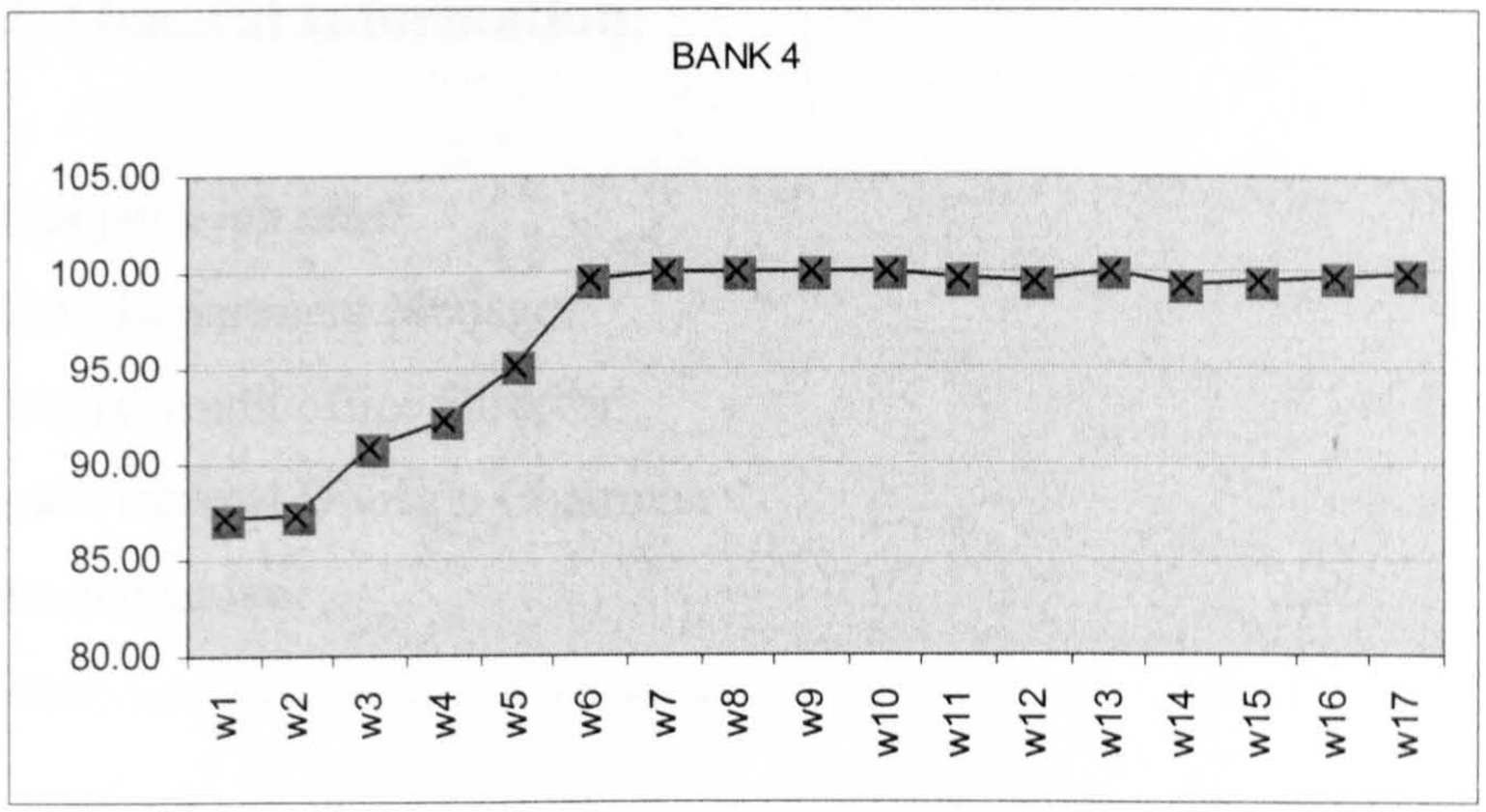
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	STDV
72.70	100.00	100.00	37.94	34.76																	69.08	31.909
	100.00	100.00	37.94	34.76	30.36																60.61	36.057
		100.00	38.12	34.76	30.36	29.95															46.64	30.019
			100.00	95.43	83.35	82.24	75.54														87.31	10.086
				100.00	100.00	100.00	100.00	96.49													99.30	1.570
					100.00	100.00	100.00	96.49	98.94												99.09	1.522
						100.00	100.00	100.00	96.49	90.22											97.34	4.262
							100.00	99.84	100.00	89.97	100.00										97.96	4.468
								100.00	100.00	89.97	100.00	97.30									97.45	4.344
									100.00	89.97	100.00	100.00	100.00								97.99	4.486
										94.12	100.00	100.00	100.00	100.00							98.82	2.630
											100.00	100.00	100.00	100.00	100.00						100.00	0.000
												100.00	100.00	100.00	100.00	75.95					95.19	10.755
													100.00	99.83	100.00	76.12	100.00				95.19	10.661
														100.00	100.00	83.30	100.00	99.34			96.53	7.400
															100.00	84.24	100.00	99.34	92.31		95.18	6.923
																100.00	100.00	24.17	89.00	100.00	82.63	33.028
72.70	100.00	100.00	53.50	59.94	68.81	82.44	95.11	98.56	99.09	90.85	100.00	99.46	100.00	99.97	100.00	83.92	100.00	74.28	90.66	100.00		

Continued appendix three

Average levels of efficiency of commercial banks in Libya by window analysis




BANK 3
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
w1
w2
w3
w4
w5
w6
w7
w8
w9
w10
w11
w12
w13
w14
w15
w16
w17


BANK 4
105.00
100.00
95.00
90.00
85.00
80.00
w1
w2
w3
w4
w5
w6
w7
w8
w9
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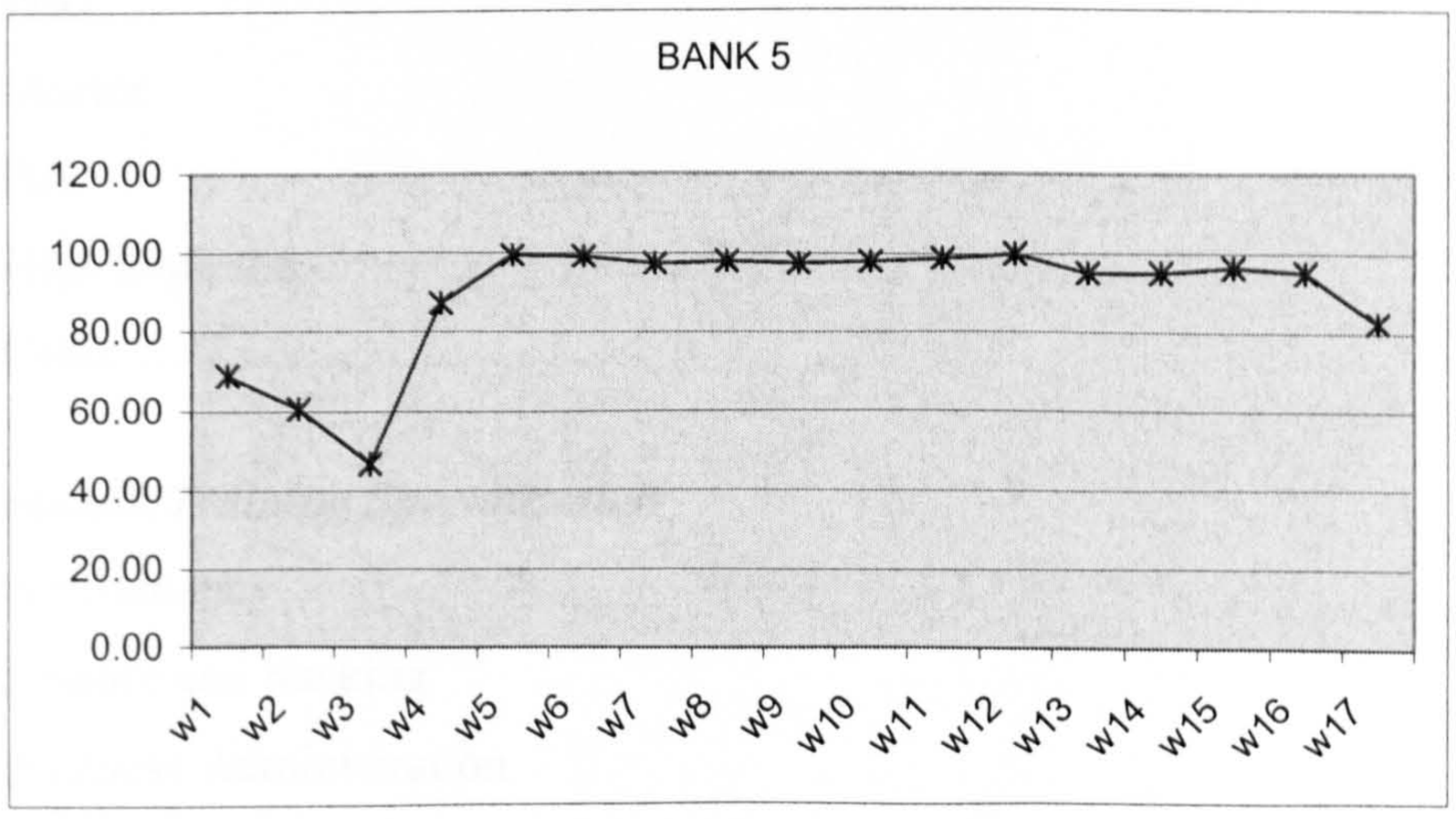
w14
w15
w16
w17


BANK 5
120.00
100.00
80.00
60.00
40.00
20.00
0.00
w1
w2
w3
w4
w5
w6
w7
w8
w9
w10
w11
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w15
w16
w17

APPENDIX FOURE QUESTINNAIRE DESIGEN

Division of Economic and Resource Management

Newcastle Business School

Northumbria University

Please answer the following questions by ticking the appropriate box

PART I: General Information:

1.1) What is your job title?

- ❑ Audit Department Manager
- ❑ Internal Audit office Director
- ❑ Audit Internal Division Chairman
- ❑ Internal auditor
- ❑ Other .....

1.2) Academic Qualifications

- ❑ PhD
- ❑ Master
- ❑ BA
- ❑ High Diploma
- ❑ Other .....

1.3) Academic/Training Specialisation

- ❑ Accountancy
- ❑ Finance and banking
- ❑ Business Administration
- ❑ Statistical
- ❑ Economics
- ❑ Computing
- ❑ Other.....

1.4) Number of years of experience in the banking field

- ◻ Less than 6 years
- ◻ From 6 to 12 years
- ◻ From 12 to 18 years
- ◻ Over 18 years
- ◻ Other.....

1.5) Number of years of experience in the auditing field

- ◻ Less than 3 years
- ◻ From 3 to 6 years
- ◻ From 6 to 9 years
- ◻ Over 9 years
- ◻ Other.....

Part II: Audit Function

2.1) Is your internal audit function a:

- ◻ Department?
- ◻ Office?
- ◻ Division?
- ◻ Unit?
- ◻ Other.....

2.2) Who controls the internal audit function?

- ◻ Board of Directors
- ◻ Chairman of the Board of Directors
- ◻ General Manager
- ◻ The Control Committee
- ◻ Other.....

2.3) Does the internal audit prepare a regular report?

- ◻ Yes
- ◻ No

2.4) If yes, how often?

- ◻ Monthly
- ◻ Quarterly
- ◻ Half-yearly
- ◻ Yearly
- ◻ Other……..

2.5) If yes, whom is the report submitted to?

- ◻ Board of directors
- ◻ Chairman of board of directors
- ◻ General Manager
- ◻ Control Committee
- ◻ Other……..

2.6) Do you receive any feed back from these reports?

- ◻ Always
- ◻ Some times
- ◻ Depends on the need
- ◻ None
- ◻ Other (please specify)……

2.7) Do you think that the current competence of internal audit employees are?

- ◻ Adequate to fulfil their function
- ◻ Inadequate
- ◻ Adequate but with short of skills
- ◻ Inadequate and must be developed
- ◻ If you have any additional comment concerning the internal audit employees please give your opinion? ……

2.8) How are the employees of the internal audit appointed?

- ◻ By Senior Management
- ◻ By transfer from other departments
- ◻ Must have at least 5 years experience in banking field
- ◻ By recommendation from the internal audit' manager
- ◻ Other…… …

2.9) Are there any training programs for developing the performance of the internal audit' employees in your bank?

- ☐ Yes (regular programs)
- ☐ Yes (but irregular programs)
- ☐ None

2.10) If yes (regular programs) by what method?

- ☐ Regular studies (e.g. completing higher education)
- ☐ Specific training
- ☐ Offsite training courses
- ☐ On job training
- ☐ Other……..

2.11) Are audit employees (Head office / Branches) able to notify any instruction and directives from Central Bank of Libya?

- ☐ Yes
- ☐ No

2.12) Is there any pursuit of the international development in your internal audit?

- ☐ Yes
- ☐ No

2.13) Do internal audit employees adhere to the international auditing standard when carrying out their functions?

- ☐ Always
- ☐ Sometimes

2.14) Are these standards implemented in your bank?

- ☐ Yes
- ☐ No

Part III: Senior Management and Audit Function

3.1) Does your bank have any clear organisational structure that determines the managerial position?

- ☐ Yes
- ☐ No

3.2) Does your bank have any additional organisational charts that determine the authority, responsibility and communication?

- ◻ Yes
- ◻ No

3.3) Does your bank have a written accountancy system to ensure that employees carry out their duties?

- ◻ Yes
- ◻ No

3.4) Does the senior management determine the general policies for the internal audit function?

- ◻ Yes
- ◻ No

3.5) If yes, would you provide a brief account of these policies?
……
……

3.6) Do you agree that the senior management assist the internal audit (department/ division / office) to perform their duties?

- ◻ Strongly agree
- ◻ Agree
- ◻ Disagree
- ◻ Strongly disagree
- ◻ Undecided

3.7) Do you agree that senior management understands the importance of the internal audit's roles?

- ◻ Strongly agree
- ◻ Agree
- ◻ Disagree
- ◻ Strongly disagree
- ◻ Undecided

3.8) In your opinion, what is the point of view of the senior management for the role of the internal audit:

- ☐ Positive and very important in realising the bank' goals
- ☐ Positive only
- ☐ Negative
- ☐ Regulatory compliance
- ☐ Other please specify.....

3.9) Has the senior management placed greater emphasis on the internal audit's role during the last 10 years?

- ☐ Yes
- ☐ No

Part IV: Scope and Limitation of Audit Function

4.1) Are there any specific written programs for internal audit function in your bank?

- ☐ Yes
- ☐ No

4.2) Please tick which programs are applicable (May choose more than one)?

- ☐ Financial audit
- ☐ Managerial audit
- ☐ Documentary audit
- ☐ Technical audit
- ☐ Goals audit
- ☐ Performance audit

4.3) Do you think these programs are sufficient and relevant to achieve the audit function?

- ☐ Yes
- ☐ No

4.4) Does the scope of audit function cover all bank's activities?

- ☐ Yes
- ☐ No

4.5) Does the audit department usually review and evaluate the activities of top management?

- ◻ Yes
- ◻ No

4.6) Does the auditing function extend to determine any aspect of risk management?

- ◻ Yes
- ◻ No

4.7) If yes, please specify which methods are used in risk assessment?

.....
.....

4.8) If no, who conducts this function?

- ◻ Senior management
- ◻ Credit Department
- ◻ External Expertise Bureau
- ◻ Not important
- ◻ Other.....

Part V: Objectives and Mechanisms of Internal Audit Function

5.1) What is your official relationship with internal auditors in your bank?

- ◻ Direct relationship
- ◻ Indirect relationship

5.2) If there is a direct official relationship, do you set out to them your directives and instructions concerning the internal audit duties?

- ◻ Yes
- ◻ No

5.3) If yes, are your instructions and directives

- ◻ Written?
- ◻ Oral?

5.4) What is the relationship between your audit department and the Central Bank of Libya?

- Direct relationship
- Indirect relationship

5.5) If a direct relationship, does the Central Bank of Libya determine the framework of audit function in banking sector?

- Yes
- No

5.6) Does the Central bank of Libya have authority to acquire the internal audit reports?

- Yes
- No

5.7) Do you believe the internal audit department is to achieve its duties?

- Always
- Sometimes
- Infrequently
- Never

5.8) Has the internal audit department ever assisted to discover many cases of corruption and embezzlement in the last 10 years?

- Yes
- No

5.9) If yes, how many cases?

- 1-5
- 6-10
- Over 10

5.10) Do you think that reasons for corruption and embezzlement may attribute to:

- Lack of internal control systems
- Attitude of senior management
- Lack of banking regulation
- Intervention from external bodies
- Other.....

5.11) How many times had the top management reviewed the procedures and scope of the internal audit controls function?

- ☐ Regularly
- ☐ Other please specify.....

5.12) What do you believe is the most important factor to strengthen the roles of internal controls system in Libyan banking sector?

.....

.....

APPENDIX FIVE QUESTIONNAIRE ANALYSIS

Table 6.1*: JOB TITLE

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Audit Manager	1	8.3	1	8.3	1	6.7	1	7.1	1	7.1	5	7.5
Internal Audit Office director	0	0.0	0	0.0	2	13.3	0	0.0	0	0.0	2	3.0
Audit internal division chairman	2	16.7	2	16.7	3	20.0	2	14.3	4	28.6	13	19.4
Internal auditor	7	58.3	8	66.7	8	53.3	10	71.4	7	50.0	40	59.7
Other	2	16.7	1	8.3	1	6.7	1	7.1	2	14.3	7	10.4
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.2*: HIGHER QUALIFICATION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Master	2	16.7	1	8.3	2	13.3	1	7.1	2	14.3	8	11.9
BA	5	41.7	3	25.0	0	0.0	0	0.0	3	21.4	11	16.4
High diploma	5	41.7	1	8.3	11	73.3	9	64.3	7	50.0	33	49.3
Other	0	0.0	7	58.3	2	13.3	4	28.6	2	14.3	15	22.4
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.3*: EXPERIENCE IN THE AUDITING FILED

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Less than 3 years	2	16.7	4	33.3	6	40.0	8	57.1	3	21.4	23	34.3
From3 to 6 years	6	50.0	2	16.7	3	20.0	3	21.4	3	21.4	17	25.4
From 6 to 9 years	2	16.7	4	33.3	3	20.0	1	7.1	1	7.1	11	16.4
Over 9 years	1	8.3	1	8.3	3	20.0	2	14.3	7	50.0	14	20.9
Total	11	91.7	11	91.7	15	100	14	100	14	100.0	65	97.0
Missing System	1	8.3	1	8.3	0	0.0	0	0.0	0	0.0	2.0	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

6.4*: FEED BACK FROM THESE REPORTS

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Always	4	33.3	3	25.0	10	66.7	4	28.6	4	28.6	25	37.3
Sometimes	2	16.7	0	0.0	5	33.3	5	35.7	6	42.9	18	26.8
Depends on the need	6	50.0	8	66.7	0	0.0	5	35.7	3	21.4	22	32.9
Total	12	100	11	91.7	15	100	14	100	13	92.9	65	97.0
Missing System	0	0.0	1	8.3	0	0.0	0	0.0	1	7.1	2	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

6.5*: EMPLOYEES COMPETENCE

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Adequate to fulfill their function	0	0.0	1	8.3	0	0.0	0	0.0	1	7.1	2	3.0
Inadequate	4	33.3	8	66.7	10	66.7	6	42.9	6	42.9	34	50.7
Adequate but with short of skills	6	50.0	1	8.3	3	20.0	5	35.7	5	35.7	20	29.9
Inadequate and must be developed	2	16.7	1	8.3	2	13.3	3	21.4	1	7.1	9	13.4
Total	**12**	**100**	**11**	**91.7**	**15**	**100**	**14**	**100**	**13**	**92.9**	**65**	**97.0**
Missing System	0	0.0	1	8.3	0	0.0	0	0.0	1	7.1	2	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

6.6*: AUDITING TRAINING PROGRAMMES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes regular Programmes	2	16.7	2	16.7	0	0.0	2	14.3	0	0.0	6	9.0
Yes but irregular programmes	9	75.0	1	8.3	14	93.3	2	14.3	10	71.4	36	53.7
None	1	8.3	9	75.0	1	6.7	10	71.4	3	21.4	24	35.8
Missing System	0	0.0	0	0.0	0	0.0	0	0.0	1	7.2	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.7*: AUDIT FUNCTION AND PURSUIT INTERNATIONAL DEVELOPMENT

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	25.0	2	16.7	0	0.0	1	7.1	3	21.4	9	13.4
No	9	75.0	10	83.3	15	100	13	92.9	10	71.4	57	85.1
Total	12	100	12	100	15	100	14	100	13	92.9	66	98.5
Missing System	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table6.8*: AUDIT EMPLOYEES AND ADHERING INTERNATIONAL AUDITING STANDARD

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Always	1	8.3	1	8.3	0	0.0	0	0.0	2	14.3	4	6.0
Sometimes	10	83.3	9	75.0	15	100	14	100	9	64.3	57	85.1
Total	11	91.7	10	83.3	15	100	14	100	11	78.6	61	91.0
Missing System	1	8.3	2	16.7	0	0.0	0	0.0	3	21.4	6	9.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.9*: IMPLEMENTION OF INTERNATIONAL AUDITING STANDARD

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	25.0	2	16.7	4	26.7	2	14.3	2	14.3	13	19.4
No	9	75.0	10	83.3	11	73.3	12	85.7	11	78.6	53	79.1
Total	12	100	12	100	15	100	14	100	13	92.9	66	98.5
Missing System	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.10*: SENIOR MANGEMENT AND DETERMINATION GENERNAL POLICIES FOR AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	2	16.7	3	25.0	8	53.3	4	28.6	3	21.4	20	29.8
No	10	8.3.3	9	75.0	7	46.7	9	64.3	10	71.4	45	67.2
Total	12	100	12	100	15	100	13	92.9	13	92.9	65	97.0
Missing System	0	0.0	0	0.0	0	0.0	1	7.1	1	7.1	2	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.11*: SENIOR MANAGEMENT AND SUSTAINING AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly agree	2	16.7	1	8.3	4	26.7	1	7.1	1	7.1	9	13.5
Agree	8	66.7	4	33.3	11	73.3	6	42.9	5	35.7	34	50.7
Disagree	2	16.7	2	16.7	15	100	7	50.0	2	14.3	13	19.4
Undecided	0	0.0	5	41.7	0	0.0	0	0.0	6	42.9	11	16.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.12*: SENIOR MANAGEMENT AND IMPORTANCE OF AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly agree	2	16.7	2	16.7	5	33.3	3	21.4	3	21.4	15	22.3
Agree	1	8.3	1	8.3	0	0.0	0	0.0	0	0.0	2	3.0
Disagree	9	75.0	5	41.7	9	60.0	8	57.1	11	78.6	42	62.7
Strongly disagree	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	1	1.5
Undecided	0	0.0	4	33.3	1	6.7	1	7.1	0	0.0	6	9.0
Missing system	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.13*: SENIOR MANAGEMENT AND AUDIT FUNCTION' ROLE

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Positive Factor and very important	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.
Positive factor only	4	33.3	9	75.0	8	53.3	5	35.7	8	58.1	34	50.7
Negative factor	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6
Regulatory compliance	7	58.3	3	25.0	7	46.7	9	64.3	6	42.9	32	47.7
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100.**	**67**	**100**

Table6.14*: SENIOR MANAGEMENT 7 EVALUATION OF AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	8	66.7	6	50.0	13	86.7	4	28.6	4	28.6	35	52.2
No	4	33.3	6	50.0	2	13.3	10	71.4	10	71.4	32	47.8
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.15*: FORM AUDITING PROGRAMMES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Financial audit	3	25.0	2	16.7	5	33.3	5	35.7	1	7.1	16	23.8
Documentary audit	8	66.7	10	83.3	9	60.0	8	57.1	13	92.9	48	71.7
Managerial audit	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	1	1.5
Total	11	91.7	12	100	14	93.3	14	100	14	100	65	97.0
Missing System	1	8.3	0	0.0	1	6.7	0	0.0	0	0.0	2	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.16*: SUFFICIENT OF AUDITING PROGRAMMES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	5	41.7	5	41.7	5	33.3	6	42.9	6	42.9	27	40.2
No	6	50.0	7	58.3	7	46.7	7	50.0	8	57.1	35	52.2
Total	11	91.7	12	100	12	80.0	13	92.9	14	100	62	92.4
Missing System	1	8.3	0	0.0	3	20.0	1	7.1	0	0.0	5	7.6
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.17*: AUDITING SCOPE AND BANK ACTIVITIES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	8	66.7	9	75.0	12	80.0	8	57.1	9	64.3	46	68.7
No	4	33.3	3	25.0	1	6.7	6	42.9	5	35.7	19	28.4
Total	12	100	12	100	13	86.7	14	100	14	100	65	97.0
Missing System	0	0.0	0	0.0	2	13.3	0	0.0	0	0.0	2	3.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.18*: AUDIT FUNCTION AND REVIEWING TOP MANAGEMENT ACTIVITIES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	4	33.3	5	41.7	2	13.3	3	21.4	3	21.4	17	25.4
No	7	58.3	7	58.3	13	86.7	11	78.6	11	78.6	49	73.1
Total	11	91.7	12	100	15	100	14	100	14	100	66	98.5
Missing System	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.19*: AUDIT FUNCTION AND RISK MANAGEMENT

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	2	16.7	1	8.3	8	53.3	4	28.6	1	7.1	16	23.8
No	9	75.0	10	83.3	7	46.7	10	71.4	12	85.7	48	71.7
Total	11	91.7	11	91.7	15	100	14	100	13	92.9	64	95.5
Missing System	1	8.3	1	8.3	0	0.0	0	0.0	1	7.1	3	4.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.20*: CBL AND RELATIONSHIP WITH INTERNAL AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Direct relation	9	75.0	2	16.7	0	0	2	14.3	3	21.4	16	23.8
Indirect relation	3	25.0	7	58.3	15	100	12	85.7	9	64.3	46	68.7
Total	12	100	9	75.0	15	100	14	100	12	85.7	62	92.5
Missing System	0	0.0	3	25.0	0	0.0	0	0.0	2	14.3	5	7.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.21*: CBL AND DETERMINATION FRAMEWORK OF AUDIT FUNCTION

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	2	16.7	3	25.0	0	0	1	7.1	3	21.4	9	13.4
No	1	8.3	5	41.7	0	0	5	35.7	1	7.1	12	17.9
Total	3	25.0	8	66.7	0	0	6	42.9	4	28.6	21	31.3
Missing System	9	75.0	4	33.3	15	100	8	57.1	10	71.4	46	68.7
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.22*: AUDITFUNCTION AND ACHIEVEMENT ITS DUTIES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Always	0	0	3	25.0	5	33.3	5	35.7	5	35.7	18	26.9
Sometimes	4	33.3	7	58.3	8	53.3	3	21.4	8	57.1	30	44.8
Infrequently	4	33.3	2	16.7	1	6.7	0	0	1	7.1	8	11.9
Never	3	25.0	0	0	1	6.7	6	42.9	0	0	10	14.9
Total	11	91.7	12	100	15	100	14	100	14	100	66	98.5
Missing System	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.23*: AUDIT FUNCTION AND DISCOVERING CORRPUTION CASES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	9	75.0	9	75.0	13	86.7	8	57.1	9	64.3	48	71.6
No	2	16.7	2	16.7	2	13.3	6	42.9	4	28.6	16	23.9
Total	11	91.7	11	91.7	15	100.0	14	100.0	13	92.9	64	95.5
Missing System	1	8.3	1	8.3	0	0	0	0	1	7.1	3	4.5
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.24*: NUMBER OF CORRPUTION CASES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1to5	7	58.3	4	33.3	2	13.3	3	21.4	5	35.7	21	31.3
6to10	3	25.0	1	8.3	4	26.7	1	7.1	2	14.3	11	16.4
Over10	1	8.3	2	16.7	7	46.7	3	21.4	3	21.4	16	23.9
Total	11	91.7	7	58.3	13	86.7	7	50.0	10	71.4	48	71.6
Missing System	1	8.3	5	41.7	2	13.3	7	50.0	4	28.6	19	28.4
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

Table 6.25*: REASONS OF CORRPUTION CASES

	Bank1		Bank 2		Bank 3		Bank 4		Bank 5		Total Sample	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Lack of internal control systems	4	33.3	3	25.0	5	33.3	4	28.6	6	42.9	22	33.0
Attitude of senior management	2	16.7	1	8.3	9	60.0	5	35.7	5	35.7	22	33.0
Lack of bank regulation	3	25.0	5	41.7	0	0	1	7.1	1	7.1	10	15.0
Intervention from external bodies	3	25.0	0	0	1	6.7	4	28.6	1	7.1	9	13.0
Missing System	0	0.0	3	25.0	0	0.0	0	0.0	1	7.1	4	6.0
Total	**12**	**100**	**12**	**100**	**15**	**100**	**14**	**100**	**14**	**100**	**67**	**100**

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